

THE RAILWAY GAZETTE

Price: Two Shillings

FRIDAY, JUNE 28, 1957

Annually £4-10s. by post

ENGINEERING

Where they use ^{JUL 18 1957} METROVICK traction

LIBRARY

EIRE*



Many of the principal railways of the world use equipment made by Metropolitan-Vickers, whose experience ranges over the entire field of road and rail transport. Electric main line and industrial locomotives, multiple unit trains, diesel-electric loco-

motives, automatic signalling, and all the auxiliary equipment which go to build them can be supplied by Metrovick. The advice of Metrovick engineers is available on all traction needs from gears to complete railway installations.

METROPOLITAN-VICKERS

ELECTRICAL CO LTD TRAFFORD PARK MANCHESTER 12

An A.E.I. Company

One of the 94 diesel-electric locomotives that Metrovick is supplying to Coras Iompair Eireann. These will serve all lines, and the order is the largest of its kind placed in Britain. Sub-contractors for mechanical parts: Metropolitan-Cammell.



METROVICK TRACTION FOR MORE EFFICIENT TRANSPORT

K/T607

The G.D. Peters policy has always been **SAFETY with COMFORT**



•• SAFETY ••

with the dependability of

C. B. & E. CO. LTD.

VACUUM BRAKE EQUIPMENT

Since there can be no question of relaxation where safety is concerned, one of our principal aims at Slough has always been the **DEPENDABILITY** of our products. This applies in particular to the Vacuum Brake Equipments which we manufacture for use on all classes of Rolling Stock on Railways throughout the world.



•• COMFORT ••

with the luxury of these

PETERS

REVOLVING & RECLINING SEATS

'Superb' is the only word to describe these luxury seats. The design and workmanship are outstanding. Pedal-release allows the seat to rotate within a circle $54\frac{1}{2}$ ins. diameter, and only $1\frac{1}{2}$ ins. clearance from bodyside is required. The seat portion can be detached from the base mechanism to facilitate maintenance and initial installation. Full details of these products on request.

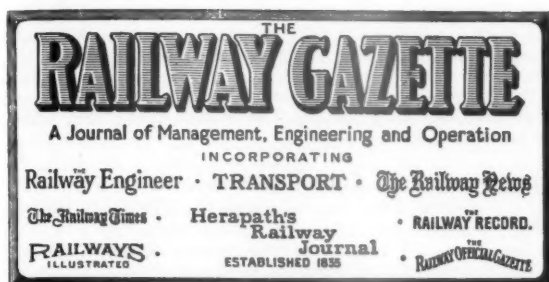
PETERS

OF SLOUGH

G. D. PETERS & CO. LTD., ENGINEERS (TRANSPORT DIVISION), SLOUGH, BUCKS, U.K.

TELEPHONE: SLOUGH 23201 TELEGRAMS: "PETERS" SLOUGH

THE CONSOLIDATED BRAKE & ENGINEERING CO. LTD., Windsor Works, Slough. Tel: Slough 23201. Grams: Vacuo, Slough
 Vacuum Brakes • 'Wedglock' Automatic Couplers • Power-Operated Door Equipment • Carriage Washing Plant • Seats & Blinds
 Ventilators & Windows • Panel Boards 'Sundeala' & 'Sundek' • Steam Heating Equipment • Welding Plant • Electrodes & Accessories



33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1.

Telephone: WHitehall 9233 (12 lines) Telegrams: "Trazette Parl. London"

BRANCH OFFICES

GLASGOW: 139, Bothwell Street, C.2 Central 4646

NEWCASTLE-ON-TYNE: 21, Mosley Street Newcastle-on-Tyne 22239

MANCHESTER: Century Insurance Building, St. Peter's Square Central 3101

BIRMINGHAM: 90, Hagley Road, Edgbaston Edgbaston 2466

LEEDS: 70, Albion Street Leeds 27174

BRISTOL: 8, Upper Berkeley Place, Clifton Bristol 21930

Annually £4 10s. by post. Single copies, Two shillings.

Registered at the G.P.O. as a newspaper. Entered as second-class matter in U.S.A.

Editor: B. W. C. Cooke, Assoc. Inst. T.

Vol. 106]

FRIDAY, JUNE 28, 1957

[No. 26

CONTENTS

	PAGE
Editorial Notes	729
Combustion Engine Congress	731
Ninth Year of State Transport	731
General Managers' Conference in Rhodesia	732
Labour Transport Policy	733
Implementing the Charges Scheme	733
Display of British Railways Rolling Stock	734
Letters to the Editor	734
The Scrap Heap	735
Overseas Railway Affairs	736
Abandonment of Steam Power in the U.S.A.—3	738
Bogie Wagons for Carrying Chlorine	741
Signalling Developments on S.N.C.F. Lines	742
Personal	745
New Equipment and Processes	748
News Articles	749
Contracts and Tenders	753
Notes and News	754
Railway Stock Market and Official Notices	756

Cost of Fuel

YET another addition to British Railways costs will start to make itself felt next Monday, when the price of coal will rise by an average of 6s. 6d. a ton. With some 17,500 steam locomotives still in use on British Railways, and a coal consumption of 12,000,000 tons a year for traction purposes alone, the price increase will add at least £4,000,000 to the fuel bill each year. With the addition of coal used for other purposes, the amount is likely to be nearer £5,000,000. Costs such as these cannot be reduced to any extent by higher productivity, and the British Transport Commission already has announced that it is to make an immediate review of railway rates and fares. On the horizon is the agitation by road haulage interests to have the tax on diesel fuel for road haulage removed, or failing this, to reduce the amount of tax per gallon, while maintaining total revenue, by charging tax on diesel fuel used for rail traction. It is to be hoped that the Government will ignore this particular argument, for the railways have much greater obligations than the private haulier and nothing should be done to make their task more difficult. The conversion of areas to diesel traction should be

accelerated, if possible, for the higher cost of coal now makes diesel working relatively cheaper than it was, and there are savings in staff costs and in maintenance as additional factors. Cleanliness itself is a selling point appreciated by the public, and the freedom from pollution by smoke will, in time, enable savings to be made in painting costs of stations and lineside structures. The introduction of diesel services is perhaps the aspect of the modernisation plan which can most quickly be realised and which will have the most immediate appeal to the public. In many cases, however, diesel traction is only a stage on the way to electrification which, insofar as it may use coal as the basis of power, uses it in a more efficient manner—and, also, uses lower-grade coal sold at a lower price. British Railways, however, have an interest in coal as a traffic as well as a fuel, and it remains to be seen whether higher prices will restrict the use and output, and therefore the movement, of coal in Britain.

London Transport Service

THE work of London underground railway and bus staffs during the period of petrol rationing is rightly praised by Sir John Elliot, Chairman of London Transport, in an article in the current issue of *London Transport Magazine*. There were many, as Sir John Elliot recognises, who thought that the virtual cessation of private motorcar travel to work in London would result in chaos, crowding, and confusion, but, even if there was a little more crowding than usual at the peak hours on the underground railways, there was no real discomfort. The underground trains at times other than the peaks were more comfortable than usual, for longer trains with more seats were run throughout the day. On the roads, buses, trolleybuses, and coaches, freed from much of the usual traffic congestion, ran better than they have done for years and gave London Transport a chance to show what it can do given reasonable operating conditions. London Transport learned many valuable lessons in bus control during petrol rationing, as, indeed, did British Railways in handling extra passenger and freight traffic, and improvements arising from those lessons are continuing now that normal conditions have returned to the British transport scene.

By B.R.S. to the Continent

BRITISH Road Services have again demonstrated their efficiency and readiness to accept and introduce new methods by the plans announced for developing direct road services to and from the Continent. The 10-ton trailers to be used will travel between Tilbury and Antwerp in the ships of the Atlantic Steam Navigation Co. Ltd., an associated company already running a successful transport ferry service. The carriage of vehicles and trailers to Ireland by special ships has proved an economic proposition and the absence of handling has reduced damage to loads. These advantages should show up equally well on the new Continental services. The railways, with their train ferries, were the pioneers in carrying loaded vehicles to and from the Continent, and it is natural that the road services should follow suit in time. As might be expected from railway experience, there is likely to be a demand for container services on these routes, and these will be available on request, as will special vehicles for particular traffics. If the United Kingdom joins the European Common Market, there should be ample traffic for both railway and road services.

Tilbury Passenger Terminal

THE recently-completed berth and passenger terminal at No. 1 Shed, Tilbury Docks, which were inspected by Viscount Waverley, Chairman of the Port of London Authority, Members of the Authority, guests, and the Press last Monday, represent an act of faith on behalf of the Authority—that the traffic through the terminal, already 15 per cent greater than in 1939, will continue to increase. Ships of 30,000 tons can be accommodated at the new quay, 842 ft. long with a 240-ft. return

quay at the west end. The T-shaped cargo transit shed and passenger terminal has a frontage of 532 ft. to the main quay and extends 430 ft. to the north. The two arms of the T, each 122 ft. wide, give normal transit shed accommodation with a combined area of 48,800 sq. ft. The centre section is a 29,000-sq. ft. baggage hall leading to a reception hall, car park and the railway platform. There is a 20 ft. wide railway platform adjoining the building on the west side roofed by a single-cantilever shell-concrete canopy. This platform extends a further 600 ft. to the north under a reinforced concrete double-cantilever "butterfly" canopy. This gives ample accommodation for the boat trains to St. Pancras, or to Liverpool Street, if it is decided to use that terminus for boat train traffic to and from Tilbury. The whole terminal should give a most favourable impression to Commonwealth and other visitors to Britain.

Round Oak Centenary

THE centenary of Round Oak Steel Works Limited was celebrated on June 20, when 320 guests were entertained to luncheon at the Town Hall, Dudley. This was a very pleasant occasion, only marred by the indisposition of Sir Ivan A. R. Stedeford, Chairman of the firm. For many years the company has specialised in a wide range of rolled steel sections and bars. The products of the firm are supplied, amongst others, to railway works in this country and overseas, and to British builders of rolling stock, also tube makers, railways, carriage, constructional, civil, and general engineers, the Atomic Energy Commission, drop forgers, and stampers. The bulk of the tonnage is in mild steel, but carbon, case-hardening, free-cutting and various other steels are manufactured. Round Oak Steel Works is also one of the chief manufacturers in this country of railway bearing plates. Current ingot output is about 325,000 tons a year, producing about 260,000 finished tons, all in the heavy mills. Future developments include the installation of two 50-ton electric furnaces, which, when in full production, will raise the ingot output to about 500,000 tons, providing good supplies of steel for all traditional customers.

Long Life of a Notable Viaduct

ONE of the most remarkable railway bridges in the United Kingdom celebrated earlier this month the centenary of its official opening to traffic. The 200-ft. high Crumlin Viaduct, in Monmouthshire, one-third of a mile long, was constructed almost incredibly cheaply to span a valley. Despite its fragile-looking 150-ft. wrought-iron Warren-girder deck spans and the somewhat spidery piers of such great height, it is still carrying a busy passenger and mineral traffic. This is possible because it was designed as a double-line structure—albeit tested only with two 190-ton trains simultaneously, one on each track—but subsequently modified to carry only a single line. However, there is little doubt that because of fatigue and general deterioration this centenarian must inevitably be nearing the end of its useful existence, and it will be interesting to see how its reconstruction will be planned and carried out by the Western Region of British Railways. It will certainly be an important and costly undertaking, calling for a bold imaginative policy.

End of Steam Traction in the Netherlands

THE extent to which steam is being replaced by electric and diesel motive power on the Netherlands Railways is shown in official figures. In 1951, 28 per cent of the total traffic was moved with steam, 65 per cent with electric, and not quite 7 per cent with diesel traction. Today these figures are 6, 69, and 25 per cent respectively. Although the total traffic since 1951 has increased by more than 8 per cent, the energy consumption (in calories) was 11 per cent lower as a consequence of the change of motive power. After delivery of all diesel locomotives now on order, the Netherlands Railways will have, in 1958, 607 diesel locomotives, of which 278 will be shunters

and 280 for main-line passenger and freight working. By the end of next year, the steam locomotive will have disappeared from all main-line railways—and, probably, from all railways—in Holland. A remarkable feature is the extent to which relatively lightly trafficked lines have been and are being electrified in a country without water-power resources.

Irregular Use of Train Communication

A PASSENGER was reported recently as having operated the train communication in a tunnel because he had left his belongings behind, totally regardless of the delay and inconvenience thus caused to many others by his illegal action, which came within the provisions of the Regulation of Railways Act of 1868. This laid down that as from April 1, 1869, every train carrying passengers and travelling more than 20 miles without stopping should have "such efficient means of communication between the passengers and the servants of the company in charge of the train as the Board of Trade may approve," and further that anyone using it "without reasonable and sufficient cause" should be liable "for each offence to a penalty not exceeding five pounds." It rests, therefore, with the magistrate, should a charge be preferred, to decide whether the operation of the communication has been justified and, if he thinks not, what penalty to impose up to the maximum permitted. For a long time now, of course, practically every passenger train in the United Kingdom has had communicating equipment, although in fact there is still no obligation to provide it except on those coming within the terms of the Act of 1868 as regards the intervals between stops.

Signalling Progress on the French National Railways

THE extension of electrification, rebuilding of stations and yards, and other improvements effected since the war on the French railways have been accompanied by the application on a considerable scale of power interlocking and automatic signalling and much better arrangements for protecting level crossings. Some account of what has been done is given on another page. Relay interlocking has been adopted as standard, although a certain amount of equipment of earlier type is still being applied on occasion, the operating buttons being disposed on a desk separate from the track diagram, with route setting and pre-selecting facilities. A standard type of electro-mechanical or "mixed" signalbox also has been adopted for layouts of less importance. Much interest attaches to the steps being taken to arrive at uniform principles and instructions for use with the several types of manual block inherited from the old companies, especially the Lartigue pattern, itself not always worked in the same manner everywhere. For entirely new work of this class a standard block operated by relays and impulse currents has for some time been applied and has proved most satisfactory.

Signalling the Route to the Kent Coast

THE Southern Region has decided to instal the most modern type of colour-light and power signalling equipment from Brixton through Swanley and Chatham to Margate and Ramsgate and along the Sheerness branch to provide maximum traffic working facilities in connection with the electrification to the Kent Coast due for completion in 1959. This will involve a very large amount of equipment, as shown in our Contracts and Tenders section this week; the orders have been divided among three manufacturers. The colour-light signals, totalling 400, will display the aspects long standard in the Region and generally the installations will follow its well-tried practice, with the interesting exception that the new power boxes will be of the "panel" instead of the lever frame type. The whole of the Sheerness branch—which crosses the Kingsferry lift bridge over the River Swale, so creating an electrification and electric signalling problem—will be controlled by remote control methods

from the panel at Sittingbourne. A number of the existing boxes will be retained, modified to work with the new equipment, but no fewer than 30 will disappear.

Old Locomotive Boilers

BECAUSE of the rapid extension of electrification in Italy, and increasing use of diesel railcars on secondary lines, the Italian State Railways have on hand an appreciable number of steam locomotive boilers in serviceable condition; and, rather than just scrap them at once, studies have been made to see if they can be used as stationary steam generators, either for State Railway purposes or for industry and municipalities. But cardinal points were that unless they could give at least 80 per cent of their steam-raising capacity with the locomotive forced draught, and could burn coal of different classes, heavy fuel oil, and methane, then they might as well be scrapped. Firing with heavy oil did not give such a high output as could be attained under stationary conditions with the two other fuels; nevertheless, because of easier and cheaper transport, storage, and handling, the use of oil was preferred by the investigators. Tests were carried out first with conventional burners, rotating burners and pressure burners. All of these were arranged at back or front of the firebox and necessitated a fire-brick lining round the lower half of the box. Therefore a rotary burner with a vertical axis has been tried, and is said to show promising performance.

Combustion Engine Congress

THE International Congress of Combustion Engines, which was held at Zürich between June 17 and 25, on several counts must be adjudged the most successful since the series was inaugurated at Paris in 1951. The number and range of the papers presented, and their discussion, were impressive, and covered all technical aspects (research, results and prospects) of supercharged diesel engines and combustion turbines for marine, traction and power station use. Nearly 30 papers were covered in eight technical sessions and the number of delegates who were present at each session and who took part in the discussions was a tribute not only to the deep interest in the papers themselves but also to the value of the meetings for exchanging views and experience.

There was widespread regret when it became known on the assembly of Congress that because of ill-health Mons. P. C. Tharlet, Chairman of the Permanent Committee, was unable to be present. His place as President at the opening session was taken by Mr. H. Andresen of Denmark, a Vice-President, who in his opening address said that the Congress was the largest held so far. There were some 950 delegates from 23 countries. Already there were 11 member countries of C.I.M.A.C.; now the United States was forming a group which would increase the member countries to 12. The Committee was particularly pleased to hold the Congress in Switzerland, a country where so much pioneer and development work in diesel engines and gas turbines had been done over so many years.

Professor Dr. H. Pallman, President of the Council of the Swiss Federal Institute of Technology, where the technical sessions were held, also welcomed the delegates, and stressed the importance of international technical meetings of this kind. He thought it was not only necessary to clarify the problems which would be dealt with in the papers and to open up new technical horizons. Scientists in the present age had greater power than politicians and it was all the more essential, therefore, for them to meet on human and sociological grounds.

At the Congress banquet it was announced with regret that Mons. Tharlet had resigned and had been succeeded by Mr. Andresen. Tributes to the valuable work which Mons. Tharlet had done in fostering the spirit of co-operation in the Association were paid by Mr. Andresen,

and Mr. E. Speiser, President of the Swiss Society of Engine Builders, and by Mr. W. K. G. Allen, Chairman of the British National Committee, who also thanked the Swiss Committee for all that it had done to ensure the success of the Congress.

No decision was reached during the course of the Zürich meetings on the details of the next Congress which is due to be held in 1959. It is expected that an announcement will be made of the place and subjects to be covered at these meetings during November this year.

Apart from the discussion of papers and the opportunity which was afforded of close personal contact between the delegates, a most interesting series of technical visits to important Swiss works was arranged and well attended. At the works of the Oerlikon Engineering Company, which was founded in 1876 and now has some 3,800 employees, visitors were shown the high-power test station, a high-voltage laboratory, and shops and test stand for heavy machinery, transformers and mercury-arc rectifiers, as well as for high-power circuit breakers and steam and gas turbines and compressors.

At Baden, the research and development centre of the Brown, Boveri Group, which dates back to 1891 and now has over 13,000 employees, attention was concentrated on the shops and laboratories connected with gas turbines and turbo-chargers. A visit was also made to the gas turbine power station of the N.O.K. Electricity Company at Beznau. The Maag Gear-Wheel Company showed a wide range of high-precision gear-cutting and grinding machines, as well as instruments for measuring gears and their manufacture for traction and all other purposes.

The Escher Wyss Company, founded in 1805, which has 2,300 employees in Switzerland, and subsidiary works in Germany, Italy, and South Africa, manufactures hydraulic, steam and gas turbines, pumps, valves, compressors, and so forth, put on view its research laboratories, material testing laboratory, boiler shop foundry, machine shop and erecting shop. At the Swiss Locomotive & Machine Works at Winterthur, the locomotive, diesel engine and compressor departments were inspected. This company was founded in 1871, and has some 2,200 employees. Sulzer Brothers, also at Winterthur, goes back to 1834 and now has some 9,900 employees in Switzerland, and over 30 licensee companies throughout the world. Foundries, machining and erection shops for diesel engines were visited at Winterthur, and machining and fitting shops for centrifugal pumps, blowers and gas turbines at Oberwinterthur, where considerable expansion of factory space is being developed.

Ninth Year of State Transport

MUCH of the interest of the report for 1956 of the British Transport Commission, published today, has been lost by reason of the issue of the White Paper, "Proposals for the Railways," last October. This White Paper, which was discussed in our issue of November 2, 1956, contained a great deal of matter which otherwise would have been seen for the first time in the annual report.

The Commission activities as a whole showed a working surplus of £4.5 million, before charging interest on capital, capital redemption, and certain minor special items. The working surplus of £21 million for activities (including London Transport) other than British Railways was reduced by the £16.5 million deficit of British Railways, which, with £41 million capital charges, mainly interest, made £57.5 million to be transferred to the statutory special account opened under authority of the Transport (Railway Finances) Act, 1957. The £21 million working surplus from these other activities, reduced by the appropriate share of capital charges, £17.9 million, gives a surplus on revenue account for these activities of £3.1 million. The special account holds in suspense, for subsequent amortisation, extra costs and deficits incurred during the work of modernisation. The amount which the Commission will now borrow, under the terms of the

Act, will be the £57.5 million transferred to special account less the £3.1 million surplus, i.e. £54.4 million, or some 20 per cent of the total sum of £250 million which Parliament deemed likely to be needed to bridge the gap until the Commission accounts are again in balance. This is expected to occur in 1961 or 1962, so that in these early months events can be said to be running according to plan. The deficit on working for British Railways, of £16.5 million, should be considered in relation to gross receipts of £480 million.

The Commission, like other providers of public transport, faces the problem of continuing increases in the number of private motorcars and commercial vehicles. As the report states, there is a fundamental paradox in having at the same time overcrowded roads and an apparatus of public transport which could carry considerably greater traffics than it is now doing. In fulfilling its obligations under the Transport Acts the Commission is performing the more onerous tasks of public transport, including carrying the expensive and not always remunerative peak traffics. The more vehicles placed on the roads, and the more congestion, the more expensive public transport, on which so many completely depend, becomes to provide. It is only now sinking in to the public consciousness that the nationalised transport undertaking has no monopoly, and in fact controls less than a third of the country's transport. Also, many of the problems faced by the Commission are general ones being faced in many countries and would have occurred whether transport had been nationalised or not. The Commission, with its modernisation plan, freight charges scheme, and realistic attitude to productivity is on the right road to overcoming its difficulties and will be helped by the growing availability of manpower. In 1956, for the first year since 1952, the intake of labour on British Railways exceeded wastage. Despite wages claims, and so on, there were no stoppages of work of any consequence during the year. On the other hand, a warning note was sounded at the beginning of the year when the Commission was asked by the Government to reduce its capital investment programme for 1956 by £22 million. Of this, £12 million was obtained by retarding smaller works for British Railways and slowing-down some deliveries of rolling stock. It is to be hoped that this nibbling at the modernisation plan will not be repeated, in the name of the national economy or anything else. The prosperity of a civilised country is bound up closely with good transport facilities.

Two important decisions during 1956 were those to adopt the 25,000-V. 50-cycle system as standard for future electrification work and to adopt the vacuum brake for all freight and passenger rolling stock except electric and diesel multiple-unit stock. This latter decision caused some controversy and is still a cause of argument. The automatic train control equipment which has been evolved in the last few years received approval by the Inspecting Officers of the Ministry of Transport & Civil Aviation in November, and installation is proceeding. This will make even safer a railway system on which no passenger died as a result of a train accident in 1956.

Passenger-miles on British Railways during the year rose to a record, for the period of nationalisation, of 21,133 million and passenger receipts were £127.5 million against £118 million for 1955. Loaded passenger-train miles rose from 224 million to 234.5 million, but the average number of passengers per train dropped slightly from 91 to 90. As to freight services, these were affected by the cessation of expansion of industrial production, which had been growing steadily since 1952. As the number of "C"-licence vehicles in use grew considerably in 1956, there was inevitably less traffic for the railways, resulting in less satisfactory use of stock. General merchandise traffic declined by 2 per cent, no doubt because of the factors just mentioned, but mineral traffic, less attractive to road operators, rose by 2.7 per cent. Coal and coke traffic increased by 1.2 per cent. There was an improvement of £16 million in British Railways freight receipts as a whole, but the net increase for the Commission in general was £9 million, the railway improve-

ment being largely offset by a decline of £7.4 million in British Road Services receipts caused by the disposal of many vehicles in accordance with the 1953 Act.

The Commission believes that the progress made in 1956 enables it to look forward with confidence to further achievements in all sections in 1957. It believes also, with good cause, that as the practical evidence of progress grows, public support will follow. To make a success of British Railways, the report states, will continue to be the main concern of the management, with first priority given to the improvement of the railway freight services. This will be essential if the Commission accounts are in fact to balance by 1961 or 1962 and a start is then to be made on the repayment of Government loans.

General Managers' Conference in Rhodesia

THE third Conference of General Managers of railways in Southern Africa was held at the Victoria Falls Hotel—which is operated by the Rhodesia Railways—earlier this month. On this occasion the Rhodesia Railways were the host administration, and their General Manager, Lt-Colonel H. B. Everard, was unanimously elected Chairman of the conference in succession to Sir Arthur Kirby, General Manager of East African Railways. The first and second of this series of meetings were held in 1954 and 1955 respectively in Johannesburg and Nairobi, at the invitations of South African Railways & Harbours and East African Railways & Harbours. The purpose is to further the free exchange of ideas on technical subjects connected with railway and port working in the Southern part of the continent. From the account on another page it will be seen that the several territories of the British Commonwealth, and Portuguese territories and the Belgian Congo, in which the railways represented function, cover a large area of Africa. The proceedings, in view of the international nature of the gathering, were in English and French.

Whilst the railways whose General Managers and other senior officers attended the conference vary greatly in size and economic environment—with the South African Railways presenting, perhaps, the greatest contrast to the others, more particularly in respect of the industrialisation of several of the districts they serve—they have certain common characteristics and face certain common problems. All are predominantly of either 3 ft. 6 in. or metre-gauge, and single line, and, in general, they have to contend with the difficulties confronting most railways in tropical or sub-tropical countries—washouts, for instance, and locomotive water shortages. Most are having to carry greatly increased traffic, with the prospect of more to come, as the territories they serve develop. Besides this, most of them interconnect physically, whilst the most notable detached portions, forming the metre-gauge East African Railways, are associated with the 3 ft. 6 in. ("Cape") gauge partly by means of the ferry across Lake Tanganyika, linking the Tanganyika lines of E.A.R. & H. with the Upper Congo—Great African Lakes Railways; there are also the plans for a line to connect E.A.R. & H. with Rhodesia. In preparation for eventual physical connection with the Cape-gauge lines, new rolling stock for East Africa is being built with provision for adjustment of wheels and axles.

The value of the interchange of information and ideas made possible by these conferences was rightly stressed by Colonel Everard in his opening remarks as Chairman. It is apparent in the first day's business alone. The predominance of single line naturally caused lively discussion of operating questions such as increasing line capacity by using C.T.C.—a matter on which the Rhodesia Railways were in a position to give delegates a demonstration, with their own installation, of what has been and can be achieved. As to motive power, opinions differed, but it is significant that in South Africa, where a cautious policy has been adopted with regard to diesel traction, the decision has been taken, as was announced to the conference by Mr. D. H. C. du Plessis, General Manager of S.A.R. & H.,

to electrify a further 180 miles of the Cape-Transvaal main line from Touws River to Beaufort West. In this field also delegates had the opportunity of seeing what the Rhodesia Railways were doing—as for instance with Beyer-Garratt locomotives. The many other subjects discussed on the first day included level crossing protection and the safety of railwaymen—both of special significance in African territories, for obvious reasons—and several aspects of track maintenance and other civil engineering problems, and various questions concerned with mechanical and electrical engineering and stores procedure, standardisation, and the mechanisation of cargo handling in harbours.

Labour Transport Policy

THE policy statements on nationalised industries and future nationalisation due for publication by the Labour Party next month are not expected to contain any detailed plan for the future of the transport industry. The first, dealing with the public industries, is likely to foreshadow a review of the nationalised transport undertakings in the light of the changes made by Conservative Governments since 1951, and the pledge already given to re-nationalise road haulage will be reiterated; the second, on future public ownership, will do no more. As, however, it is understood that the main proposal in the second document is that the next Labour Government would extend the public sector of industry by share purchase, that is, by buying its way into the private sector, those spheres of the transport industry that remain in the hands of private enterprise could be encroached on if a Labour Government came to power, and steps could be taken to re-establish the transport monopoly that was the objective of Labour Party policy in 1947; but no statement is likely to be included in either document disclosing Labour intentions in regard to implementation of this policy, at least as far as transport is concerned.

No doubt this is because the Labour Party is undecided as to its future transport policy and is unconvinced that a return to the 1947 Act provides the answer. While it is pledged to re-nationalise road haulage, it is unlikely that it would repeat the blanket acquisition of all long-distance commercial haulage. It is more likely to empower the British Transport Commission to expand by purchase, either voluntary through negotiation, or by compulsory acquisition, as it deems necessary to operate a comprehensive road haulage business. Private enterprise may well be left free to compete. Similar powers may be returned to the Commission in regard to road passenger undertakings, but here again complete nationalisation is unlikely to be suggested in the policy statements, or resorted to in the event of Labour being returned to power.

Labour also remains uncertain as to what can or should be done about the Commission deficits. It seems to be less optimistic than the Commission, or the Government in its recent White Paper, as to the future earnings of British Railways. While the Labour Party supports the modernisation programme, members of the Party have shown themselves sceptical as to whether British Railways can pay their way within the estimated period; but at the same time they have been critical of the manner in which the Government is meeting these deficits by Treasury loans which become a continuing Commission liability. The railway unions are divided on the question of subsidies, and the Labour Party policy statement will almost certainly shelve the issue, although it will probably express a preference for outright subsidies, limited in amount and period, to disguised subsidies through loans.

There has always been a tendency in Labour circles to favour the railways over the roads, and a latent belief remains that much of the traffic carried by the roads rightly belongs to the railways. Disappointed at the failure of the railways to recapture and retain traffic as a result of oil fuel restriction, many in the Labour Party are asking whether the present competitive system which

the Conservative Governments have successfully stimulated by their transport policies, is fair to the railways. A reconsideration of the efficacy of the present licensing systems both for road passengers and road haulage is, therefore, likely to be proposed. Similarly, the desirability will probably be questioned of the Transport Tribunal continuing with its present powers, in view of the unique position in which British Railways and London Transport find themselves as regards rates and fares. They alone among the nationalised industries are required to have their charges authorised by a statutory body. Even although there is far greater flexibility under the new arrangement, it is considered that the railways are still at a disadvantage in this respect when compared to road haulage undertakings which are free to fix their own rates with no provision for appeal by consignors to the Tribunal as to their reasonableness.

Therefore, although no transport policy will be incorporated in Labour's imminent statements on nationalisation, there is apparently no reason to believe there is any intention of leaving well alone. It is satisfactory that there is little likelihood of wholesale nationalisation of the transport industry being rashly embarked upon. This may mean a constructive approach to the problems that still confront the Commission. They include the problem of the railways, and that of the relationship between the different means of transport, which have never been satisfactorily resolved, either by attempted integration under the 1947 Act or by the return to competition for which the 1953 Act paved the way. Labour is wise to refrain from rushing in with new plans to resolve a problem which has so far proved intractable. It is encouraging at least that during the period likely to elapse before the next election, the Opposition has time in which to work out its future transport policy in the light of its performance in the changed circumstances now prevailing.

Implementing the Charges Scheme

SINCE the confirmation of the British Transport Commission (Railway Merchandise) Charges Scheme by the Transport Tribunal on December 31 last, the Commission has been in consultation with traders on the changes involved in the new system, which grants to British Railways a considerable measure of freedom in fixing charges, provided that these are kept below the maxima fixed by the scheme. The consultations have been held through the Traders' Co-ordinating Committee and other bodies, and the discussions have led to the distribution by British Railways to traders all over the country of a booklet, entitled "Goods by Railway," which explains the provisions of the scheme and the general intentions of the Commission concerning its application. An article elsewhere in this issue deals with the booklet and full particulars of the scheme itself were given in our issue of January 11 last.

To those who have followed the progress of the scheme there is nothing new in the statements in the booklet, but there are still traders and others who seem to think that the maximum charges will be the actual charges. The Commission, through the booklet, will at least dispel such fears. It emphasises that flexibility will be the keynote of future charging. The Commission will charge, as indeed it must, commercial prices in the course of competition with other providers of transport or when inducing traders to use the railway instead of their own vehicles. This suggests that particular attention will be paid to persuading "C"-licence operators that their fleets are uneconomic, as—from a purely transport point of view—they are, for they operate, in general, without return loads. The "C"-licence operator, however, takes into account other factors when weighing-up the value of his fleet. The factor of convenience is important—the ability to dispatch vehicles as and when required and to keep the movement of the load under close supervision. A well-kept fleet of road vehicles also has considerable advertising value. The

service provided by the railways will improve greatly as modernisation and re-equipment progresses, and although the railways cannot hope to give the immediate service provided by a trader's own vehicles, they can give a frequent service at lower cost, a combination which traders should find attractive enough to persuade many of them to discontinue the use of their own fleets. The advertisement value might be kept by the use of suitable slogans or labels on packing cases, and so on, or even on containers and wagons if the traffic is sufficiently regular to justify the extra work involved.

The Commission hopes, now that some of the former legislative restrictions have been removed, to gain or regain for the railways traffic which, though not now rail-borne, is eminently suitable for rail carriage. A suitable charging policy, coupled with good service, should show important results as time progresses. On the other hand, the railways can now use their freedom of charging to discourage particularly troublesome traffics or to make sure that the charges made for them reflect the true cost of handling. Charging policy will be used also to encourage traders to offer traffic in loads of a size most suitable for economical and speedy working.

It would be unreal, however, to expect immediate and spectacular results from the introduction of the scheme next Monday. Many existing rates will continue for the time being, and, more important, charging policy is only half of a commercial weapon. The other half, a greatly improved service, can be acquired only gradually as the great engineering and other works of railway modernisation are completed.

Display of British Railways Rolling Stock

THE exhibition of some of British Railways latest motive power and passenger rolling stock which the Minister of Transport & Civil Aviation, Mr. Harold Watkinson, opens today (Friday) at Battersea Wharf Goods Depot, is the most comprehensive of its kind. Displays of locomotives and other railway material often form part of major exhibitions—as for instance at the British Empire Exhibition at Wembley in 1924 and 1925 and at the Festival of Britain at the South Bank, London, in 1951. The exhibition at Battersea, however, is devoted entirely to showing what British Railways, and British manufacturers, can do to provide comfortable and well designed passenger vehicles—including railcars—efficient motive power embodying the latest principles of design and construction, and well-appointed waiting-room and office furniture, also automatic ticket-issuing machines, and other devices to add to the convenience and speed of travel.

The display is entitled "Modern Railway Travel Exhibition," and the main interest, therefore, may tend to centre on passenger stock. Besides vehicles built in British Railways' own works, prototype coaches are on view constructed by private industry. These include one of the Metropolitan-Cammell first and second class coaches described in our February 8 issue, which incorporate some notable features such as double glazing, a ladies' powder room, and extensive use of plastic veneer.

The other products of private builders will be described in forthcoming issues of this journal. First and second class prototype coaches are being shown by the Gloucester Railway Carriage & Wagon Co. Ltd. It is believed that the air ventilating systems are of particular interest. A ram-type intake scoop delivers fresh-air to each compartment, it being possible to select a valve to allow the air to be warmed by the steam heater before entering the compartment. In two of the first class compartments automatic temperature control and window demisting is understood to be fitted additionally. Cravens Limited is also displaying passenger coaches for British Railways.

The main features of the prototype first class open saloon built by the Birmingham Railway Carriage & Wagon Co. Ltd. are believed to be the increased spacing between seats, thus reducing the number of passengers to 33 per load, and the use of individual reclining seats with foam rubber upholstery. Although British Rail-

ways basic dimensions and construction methods have been adhered to, the proportions and numbers of the body side windows, which are of double-glazed pattern, have been amended.

The Wickham-built 300-h.p. multiple-unit diesel two-coach train incorporates the builder's well-known method of integral body construction incorporating square tube framework and a corrugated steel floor. These units show attempts to achieve, internally, ease of cleaning, and externally, improved design appearance of the front end. This will be the first of the exhibits to be described in our pages.

Motive power includes the English Electric 3,300-h.p. Co-Co Deltic locomotive and the 1,000-h.p. English Electric Vulcan type "A" mixed-traffic locomotive described in our June 7 issue.

With so much on view, it seems a pity that the display is of such short duration—it will be open to the public only from 4 p.m. today, all tomorrow, and on Sunday afternoon. No doubt there are good reasons for being unable to arrange an exhibition of so much railway material at Battersea—or in an equally convenient place—for a longer period. We feel these fine examples of British design and workmanship should be seen by a wider public—and more particularly the travelling public—and for a longer period.

Letters to the Editor

(The Editor is not responsible for opinions of correspondents)

Radio and Television on Railways

June 12

SIR,—In two editorial articles in your issue of April 19, you very kindly reported the lecture given by myself and Mr. I. Waters of Pye Limited, to the Institution of Railway Signal Engineers in the I.E.E. Theatre on February 19, 1957.

Your first paragraph very correctly sets out the theme of the opening of our discourse, but the remainder of your notice, although as presented to the reader it appears to be part of our lecture, is really your editorial comment on this subject, and seriously at variance with what we said.

You imply that the American railways operate under vastly different conditions from our own. This presupposes that all American railways run over vast prairies, while in actual fact many zones have high traffic density closely approximate to those in the United Kingdom. It is in such zones that the Americans claim the greatest benefit from radiophone systems. I pointed out that our traffic people frequently say that the Americans use the despatcher system, implying that working time tables are not used. This is misleading, for operating is controlled from signal boxes over telephone circuits like our own. Working time tables are used everywhere, and as in the U.K. are departed from in actual running. Radio assists control in more rapid readjustment.

Later on in your editorial comment you dwell on the expenditure that will be required for radio operation. In the discussion after our lecture, I pointed out how very cheap modern V.H.F. radio equipment is compared with apparatus normally installed on the railways. A locomotive can be equipped for under £250 and an effective signalbox installation would cost, say, £220.

Yours faithfully,

E. J. H. MOPPETT
Director

Pye Telecommunications Limited.
Newmarket Road, Cambridge.

[Our editorial article was intended, while conveying an idea of the scope of what we thought and represented to be a very informative address by our correspondent, to give, for what they were worth, some reflections of our own on the subject. A formal report of the meeting concerned was published in our April 26 issue. It did not occur to us that readers would take our thoughts to be Brigadier Moppett's statements.—Ed., R.G.]

THE SCRAP HEAP

Rolling Restaurant

A very comfortable run for those who do not mind getting up early is that in the "Morning Talisman," British Railways' new Anglo-Scottish summer train. (What a good title, by the way, for a newly ennobled Scot!) It leaves Kings Cross at 7.45. One is having rolls and coffee among the parklands of Hertfordshire, lunch in Northumbria, and a siesta in the Scottish Lowlands. Thus braced, your business man can do a full afternoon's work in Edinburgh or London.—"Peterborough" in *"The Daily Telegraph."*

Fairlie Locomotive in Service

Major-General L. I. Wansbrough-Jones, Secretary-General, British Transport Commission, recently initiated into service the double engine *Taliesin* of the Festiniog Railway. He also gave the starting signal to re-introduce the first regular passenger service to Penrhyndeudraeth since September, 1939.

In his opening remarks he declared that with the passing of steam and the coming of diesel traction it was important to preserve the old railway tradition, for it was this country that pioneered railways. He believed, however, in tradition applied intelligently, and he wanted *Taliesin* to remain as much of a symbol of railway tradition as bearskins were to the Brigade of Guards. He congratulated the revived company on its efforts in restoring to service this historic railway.

The locomotive was built in 1885 in the company's own workshops at Boston Lodge and was rebuilt in 1956 in situ by the Vulcan Foundry Limited. It was driven by Mr. W. Hoole, a top

link driver of British Railways, Eastern Region, attached to Kings Cross Motive Power Depot. Guests at the luncheon which preceded the opening included Major-General Wansbrough-Jones, Mr. A. F. Pegler, Chairman of the Festiniog Railway Company, Mr. O. Veltom, District Traffic Superintendent, Western Region, and councillors of the Portmadoc U.D.C.

It is hoped to restore service to Tany-Bwlch in 1958, but this depends on the amount of support given to the railway by both voluntary labour and funds. The accompanying illustration shows at the initiation ceremony, from left to right, Mr. W. B. Broadbent, Director, Festiniog Railway Company; Mr. E. Roberts, Chairman, and Mr. I. Clay-Jones, Councillor, Portmadoc U.D.C.; Mr. A. F. Pegler; Major-General Wansbrough-Jones; Driver Hoole; and Mr. A. G. W. Garraway, Manager, Festiniog Railway Company.

Hundred Years of Science

[*The Science Museum, South Kensington, Department of Science and Art, was opened by Queen Victoria on June 20, 1857*]

The new Museum was housed in a corrugated iron building, and at first the scientific exhibits, which were then directed principally towards the education of artisans, occupied only a secondary position. Nor were they, in the early years, widely representative of science (even excluding natural history), and they contained moreover some oddities such as "culinary curiosities from China and Siam." . . . From the beginning there had also been closely associated with the museum a collection of models of patented inven-

tions, together with some historic relics, notably the *Rocket* and *Puffing Billy* locomotives, Arkwright's original spinning machinery, and Wheatstone's electric telegraph apparatus—which last had created a sensation when, in 1845, a message telegraphed from Slough led to the arrest of a murderer as he stepped off a train at Paddington. But it was not until 1884 that this patent collection was formally merged into the Museum.—From *"The Times."*

Down-Under Map

Travelling on the Metropolitan Line I noticed that a map of the Chiltern Hills on the carriage wall was upside down. No doubt for the benefit of Australian visitors?—From a letter to the *"Evening Standard."*

Frustrated Moose

Moose like the diesel air horn too well. To a bull moose, it sounds exactly like the mating call of his lady-love. In the north woods, every time a diesel tooted within hearing of a bull moose, he bounded happily out of the forest to further the acquaintance. Naturally he felt a bit frustrated when he found a steel monster instead of an appealing lady moose, and he frequently vented his frustration by charging the diesel. This often had disastrous results for the moose and created no little wear and tear on locomotives. The new musical horns leave the moose untouched, romantically and physically.—From *"Canadian National Magazine."*

New Look

(Improvements to premises at No. 222, Marylebone Road)

New York's Grand Central may be fine;
Some swear by Waterloo;
But wait until they've finished with
The B.T.C. H.Q.!

Then Mary-le-bone's cloistered calm
Will peradventure bear the palm.

Too long the transport industry
Has had to muddle through;
Now let us all sit up and watch
What "222" can do
To turn this hub of enterprise
Into an office paradise.

Here, where the traffic tide has flowed
Steadily through the years,
Deep calls to unfamiliar deep
And hopes outdistance fears,
As transportation looks with pride
On "222" transmogrified.

Entrenched, behind this brave façade,
In quite the best tradition,
The powers-that-be cope with the trials
And errors of Commission.
This be the motto all should share:
"None but the brave deserve the fare!"

A. B.



Photo]

[O. Morris

At Portmadoc, Festiniog Railway, at the ceremony of placing in service the double locomotive "*Taliesin*", recently rebuilt by Vulcan Foundry Limited

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

NEW ZEALAND

Napier Harbour Board Railway

The Napier Harbour Board private railway, comprising over three miles of track linking Ahuriri with the wharves at the breakwater nearly a mile away, was taken over by the Railways Department as from February 4, 1957. It is operated as part of Ahuriri station yard and worked by diesel shunting locomotives. As a result of the 1931 earthquake, the main wharves in the inner harbour at Ahuriri, then port Ahuriri, were rendered useless. The Napier Harbour Board consequently developed its deep-water facilities at the Breakwater and provided a line of its own to serve the new wharves. In 1952 the Department took over part of this line at the request of the Harbour Board, and agreed last year to take over the remainder. Four small locomotives were used by the Board in recent years for shunting between Ahuriri and the wharves. Two were old N.Z.R. engines, one of which, a "D" class 2-4-0 tank, was converted to diesel operation. The other was a "Wa" class 2-6-2 tank.

PAKISTAN

Lansdowne Bridge

Mr. A. M. Akhoond, Deputy Chief Engineer, Bridges, North Western Railway, will be in London shortly to discuss details of the new bridge being designed by Sir Bruce White & Partners. This will be built some 120 ft. downstream of the 850-ft. cantilever span, constructed by Westwood & Baillie of Poplar, London, which has carried the single line of railway across the Rohri channel of the Indus near Sukkur since Lord Reay, the Governor of Bombay,

opened it on behalf of the Governor General, Lord Lansdowne, in 1889.

The new bridge is to consist of three single-track through type high tensile steel riveted truss girder spans of 264, 310 and 264 ft, flanked by 40-ft. deck type plate girder spans, two at the Bukkur Island end and one at the Rohri end.

INDIA

Progress on the Ganges Bridge

Including one finished during the 1956 monsoon, eight of the 15 piers had been completed when work began again in the 1956-57 season. Well-sinking of the remaining seven was expected to be finished by about now and much of the superstructure work also.

This represents excellent progress, especially in view of unexpected delays caused initially by the spilling of the river over the whole area to considerable depth instead of several of the pier sites being on an island and others in very shallow water as expected; additional craft had to be obtained to meet this case. There was also further delay in the supply of materials because a long and wide sand-spit developed in the middle of the river, making approach by craft to piers 6, 7 and 8 difficult; light track supported on piles had to be laid across shallow stretches of water.

Earthwork and Staff Quarters

After overhaul during the monsoon, the earth-moving plant was engaged in raising the level of the transshipment yard formation until December. The clay here made this task difficult. Thereafter, it had to raise the northern approach embankment to its correct formation level, 44 ft. above ground

level; the maximum roadway level is 67 ft. above it. The work here necessitated climbing these heights, but by the end of March 40,000,000 cu. ft. had been moved on these two jobs. The plant is now engaged on the southern approach bank.

Near the transshipment yard over 400 of the 2,000 staff-quarter units are in hand, and most of the permanent way and other materials are at site. Arrangements are also being made for water supply, drainage and sewage-disposal.

PHILIPPINES

Conversion to Diesel Traction

The Manila Railroad is converting its entire working to diesel power, disposing in one stage of its complete stock of over 90 oil-burning steam locomotives and replacing them by 40 General Electric diesel locomotives.

ARGENTINA

Minister of Transport Visits Córdoba

The Minister of Transport, Rear-Admiral Sadi Bonnet, recently paid an extended visit to Córdoba, where he visited the Alta Córdoba and Cruz del Eje railway workshops as well as a number of industrial establishments.

Increase in Rates and Charges

An important modification of railway policy was announced recently by the Under-Secretary of the Ministry of Transport, Dr. Albizuri.

The time had arrived, said Dr. Albizuri, for the reduction and eventual elimination of the subsidies paid by the National Government to the railways in order to cover losses in working. Users of the railways should bear most, if not



[Photos]



[P. S. A. Berridge]

The Lansdowne Bridge, North Western Railway of Pakistan, showing girder construction

all, of the burden, which hitherto had rested on the shoulders of ratepayers in general. Therefore, as from June 1, rates would be increased in the following manner: main line passenger rates, 20 per cent; suburban passenger rates, 40 per cent; goods and livestock rates, 35 per cent; and parcels, luggage and ancillary services, 35 per cent. Furthermore, the State Railway Corporation is to produce within 180 days a complete study of the basic rates system in force, with its recommendation for a re-modelling of the structure in order to provide the necessary flexibility for adaptation to the economic and commercial requirements of the different zones.

In a brief summary of the present day situation of the railways, Dr. Albizuri stated that the total receipts were inadequate for the payment of considerably increased salaries and wages to a much larger number of employees and workmen. Furthermore, the cost of new diesel-electric locomotives had to be financed. The previous day, he went on to say, contracts for a total of 51,300,000 U.S. dollars and 2,350,000,000 French francs had been signed for the provision of a further 130 5-ft. 6-in. gauge and 20 standard gauge locomotives. Re-equipment of workshops and the purchase of £5,000,000 worth of steam locomotive spare parts, as well as other contracts to be financed by the Eximbank, had to be paid for.

UNITED STATES

Union Pacific Gas Turbines

It is reported by the Union Pacific Railroad that during a typical recent month its 25 2,500-h.p. gas-turbine-electric locomotives, which are on heavy freight service over the length of its principal main line between Cheyenne, Wyoming, and Ogden, Utah, averaged 12,026 miles per unit, which is considerably more than the figure attained by any diesel-electric or steam locomotives working over the same district. The gas-turbine units also averaged 34.95 train miles per train-hr., exceeding by 6 m.p.h. the average for diesel-electric units operating over the same main line. The U.P. now has 25 additional gas-turbine-electric locomotives on order, but in this case twin units of 8,500 h.p.

SPAIN

New Structure of RENFE

The decree providing for the modification of the controlling body of the National System of Spanish Railways (RENFE) has now been published in the Official State Bulletin. The controlling body will consist of (a) the president, (b) the Executive Committee of the Council of Administration, and (c) the Council of Administration. The President of RENFE will be the Under-Secretary of the Ministry of Public Works.

The Executive Committee of the Council of Administration will consist of the President, the Director-General of Railways, Tramways, and Highway Transport, functioning as first Vice-President, four Councillors appointed by the Government on the nomination of the Minister of Public Works, one of whom is to be second Vice-President, and others nominated on the proposal of the Minister of Finance. To this Committee the Director of RENFE gives assistance as required.

The Council of Administration is made up of the Executive Committee and, as members, three representatives of the Ministry of Public Works and one from each one of the Ministries of the Army, Agriculture, Industry, Commerce, and Housing, two for the National Delegation of Federations—Economic and Social Sections, four technical specialists—two economic and two financial—and a representative of industry. Also included in the Council of Administration is the Government Delegate for the Regulation of Transport and the Director of the Commissariat for Railway Equipment.

ITALY

Summer Timetable

The summer timetable provides two examples of a diesel and an electric railcar working coupled together as a single train. The first is the afternoon diesel working from Milan to Trieste, which runs coupled to a Milan-Venice electric train as far as Venice (Mestre), and the second is a new diesel train, Venice-Vienna, which is coupled to a Trieste-Tarvisio electric train from Udine to Tarvisio.

SWITZERLAND

New Metre-Gauge Service

A through metre-gauge service between Chamonix and Martigny, avoiding the change at Vallorcine, was introduced by the S.N.C.F. and the Martigny-Châtelard Railway on June 2. The once-daily through working is maintained by a new two-car train of the Martigny-Châtelard Railway built by Schindler of Pratteln with Sécheron electrical equipment, for combined rack and adhesion working. Current collection is by third rail on the French portion and from Vallorcine to Vernayaz and overhead wire thence to Martigny; the rack-and-pinion gear is used only on the Swiss side of the frontier.

FRANCE

Paris-Lyon Seat Reservation Office

Since the new seat-reservation office was opened at Paris-Lyon in 1952, bookings have continued to increase. In 1953, seat reservations at Paris-Lyon totalled 1,590,924; corresponding figures for later years were 1,692,487 in 1954,

2,100,750 in 1955, and 2,335,537 in 1956. In addition, the number of agencies in Paris with which the office has to deal has increased from 18 in 1953 to 333.

These increases, and the effect of alterations in reservation practices—e.g., seats can now be generally reserved 21 days in advance and seats can be reserved at booking offices when tickets are purchased—have made necessary certain modifications to the office layout. A "filter room" has been provided to handle enquiries and to act as an intermediary in respect of telephone reservations; also an "agencies room" to form a link between the less important agencies and the cubicles which actually handle the reservations.

All-Service Railcar

Delivery has commenced of a new type of 825-h.p. diesel railcar which is capable of use on nearly all S.N.C.F. lines. In all, 37 such railcars have been ordered, 16 of which are being built by Decauville and 21 by Renault. Delivery will be completed by the end of 1958.

The railcar will accommodate 74 passengers, 62 second class and 12 first class. The first of these vehicles will be mainly used in the South West and Mediterranean Regions and are not intended for long-distance services, as they are not equipped with kitchen facilities. They will haul the standard type of S.N.C.F. bogie railcar trailer and, at a speed of 75 m.p.h., will be able to haul four trailers on the level and at least one on the most heavily graded lines in the Massif Central.

POLAND

Main-Line Electrification

Electrification of the Warsaw-Katowice-Gliwice line, referred to in our issue of October 19, 1956, is almost complete.

The Warsaw-Katowice express is faster by over 1 hr. From July, the Warsaw-Katowice journey will take little more than 3 hr.

The final section of the line, from Zawiercie to Katowice and Gliwice, presented the greatest difficulties, as work could only proceed in short stretches because of the heavy traffic over the Silesian lines.

NORWAY

New Suburban Railway in Oslo

A new suburban electric railway in the south-east suburbs of Oslo, from Høyenhall to Lambertseter and Bergkrystallen, was opened on April 28. The new line, constructed by the municipality as a surface extension of the future underground railway system, is 3½ miles long with double track throughout, 14 bridges and a 268-yd. tunnel. Until the underground section from Etterstad to Grønland is completed in 5 to 6 years time, the new line will be worked as a part of the city tramways.

Abandonment of Steam Power in the U.S.A.—3*

Final phases of steam locomotive operation, and increased introduction of diesel-electric traction

By A. G. Hoppe

Former Mechanical Engineer, Chicago, Milwaukee, St. Paul & Pacific Railroad



Norfolk & Western Railway experimental coal-burning steam-turbine-electric locomotive, rated at 4,500 h.p. incorporating a water tube boiler, with a 600 lb. per sq. in. working pressure

THE previous articles in this series* dealt with the early development of diesel-electric motive power, and the changes in design of steam locomotives, high-boiler pressures, and so on, to meet the increasing competition of diesel-operation. It is obvious from statistics that the end of the steam locomotive in America was sealed by the time of the entry of America into the war, the war years serving only to postpone its end. However, a study of activities in the early and middle 1940's would not indicate general acceptance of this fact. This was particularly true of some of the major railways with large coal traffic; the Chesapeake & Ohio Railway continued to purchase steam locomotives, placing its last order in 1948.

The New York Central System was apparently the first of the large coal handling railways to give serious thought to the diesel-electric, when in 1944, after the receipt of two 5,400-h.p. Electro-Motive freight locomotives, they placed orders for four 6,000-h.p. passenger engines with the same manufacturers, and one 6,000-h.p. locomotive with the American Locomotive Company, as a joint development, further orders were placed with several builders for 66 units. The Pennsylvania Railroad capitulated in 1948, when it placed an order for \$16,000,000 worth of diesel-electric locomotives, distributed between the four major locomotive builders.

Orders for steam locomotives were declining quite rapidly as the 1940s drew to a close; records show the

steam locomotives ordered by class I railways after the second world war. These were for the Norfolk & Western Railway, which are given below:—

1945	..	..	148
1946	..	..	46
1947	..	..	72
1948	..	..	69
1949	..	..	13
1950	..	..	15
1951	..	..	6
1952	..	..	15
1953	..	..	0

The Norfolk & Western Railway continued to build locomotives in its own shops as late as 1952, but capitulated to some extent, when in 1954, it ordered eight diesel-electric locomotives for use in branch line services.

Insofar as the builders of the steam locomotives were concerned, the American Locomotive Company delivered its last steam locomotive, a 2-8-4, to the Pittsburgh & Lake Erie Railroad on June 16, 1948; the Baldwin Locomotive Works, a 2-6-6-2, to the Chesapeake & Ohio Railway in 1948; while the Lima-Hamilton Corporation were building large locomotives at the close of 1948 for several railways, presumably the last to be supplied by major builders for class I railways. By the end of 1954, the steam locomotive was handling less than eight per cent of the passenger traffic, less than 10 per cent shunting, and only 13.5 per cent of freight services, and while difficult to predict exactly when it will happen, there is no question but in the very near future there will be no freight, passenger traffic, or shunting, handled by the steam locomotive in the U.S.A.

The obvious advantages of the diesel-electric over the steam locomotive lie in the superior thermal efficiency, practical elimination of standby losses, and

greater availability for service. Thermal efficiency results in a direct reduction in the heat consumption per unit of work, but because of relative cost of coal and diesel fuel oil, the cost per unit of work is not reduced proportionally. Elimination of standby losses is a direct contribution to reduction in fuel costs.

Rising Costs with Steam

As diesel-electric locomotives replaced steam locomotives to any extent, the cost of operating steam locomotives increased considerably, including fuel cost, and equipment, such as cinder pits, coal sheds, boiler washing, and so on; the consumption and cost of fuel were undoubtedly the major factors. The first assignments of diesel-electric locomotives were those that would permit the most intensive service, and also those with the lowest standby losses for steam locomotives, which naturally increased the relative standby losses of the remaining steam locomotives. This was true of all types of services, as an analysis of fuel performance will show.

Figures for all railways would be somewhat unwieldy, but the point can be equally well illustrated by citing the performance of a typical large class I railway, operating both coal and oil-burning steam, as well as electric locomotives. The railway used as an example purchased a few diesel-electric locomotives in 1939, a 5,400-h.p. freight, and two 4,000-h.p. passenger locomotives in 1941, Fig. 3 gives typical class I railway locomotives from 1944 to 1956. The rates at which the diesel-electric locomotive took over from the steam locomotive is shown in Fig. 4, which indicates that in the few years following 1945, the diesel-electric

* Parts 1 and 2 appeared in our issues of May 3 and June 14, 1957

had taken more than 50 per cent of shunting and passenger services, and more than 40 per cent of shunting. By the end of 1945, the steam locomotive was handling only minor passenger services, and less than 1 per cent of shunting.

Fuel Performance

Any attempt to analyse fuel performance is complicated by the difference in fuels and the variation in costs of fuel over the period referred to. The variation in cost of fuel was as follows:

	Max.	Min.	Average	Cents per million B.Th.U.
Coal, \$ per ton	5.10	2.31	3.9	17.72
Fuel oil, cents per gal.	6.02	2.26	4	26.65
Diesel oil, cents per gal.	10.64	4.39	7.49	54.65
Elec. power, cents per kWh.	0.993	0.702	0.797	233

The only means by which a common denominator can be reached, free of the influence of cost, is to reduce the unit fuel consumption of each type of power in each of the three services to heat units; in this case B.Th.U.s. By this means a total heat consumption can be calculated for each year, and each

service. For this purpose the following estimated heat values were used:

Coal	11,000 B.Th.U. per pound
Fuel oil	150,000 B.Th.U. per U.S. gal.
Diesel oil	137,000 B.Th.U. per U.S. gal.
Elec. power	3,415 B.Th.U. per kWh.

A sample calculation for freight service is shown below:

Unit fuel consumption	Heat value per unit	B.Th.U. unit of service	Per cent of service	Portion of total	Per cent of total
Coal, 122 lb./ton mile	$\times 11,000$	$= 1,342,000$	$\times 71.4$	$= 957,000$	90.3
Fuel oil, 11.16 gal./ton mile	$\times 150,000$	$= 1,647,000$	$\times 3.3$	$= 55,200$	5.2
Diesel oil, 1.60 gal./ton mile	$\times 137,000$	$= 219,000$	$\times 17.2$	$= 37,700$	3.6
Power, 32.45 kWh./ton mile	$\times 3,415$	$= 110,800$	$\times 8.1$	$= 8,950$	0.9
			Total	1,058,850	100

Fig. 5 has been prepared showing the total B.Th.U. consumption per unit for the three services in relation to the percentage of the service handled by the diesel-electric locomotives. As the diesel-electric took over more and more of the service, the total heat consumption approaches more closely that of the diesel-electric alone. However, throughout this period the steam locomotives consumed a proportionately higher percentage of the total heat than the per cent of service would indicate. The superior thermal efficiency of the diesel-electric together with the very low standby fuel losses

account for the major part of this discrepancy, the balance because of the fact previously mentioned; that the service still operated by steam carried the burden of increasing standby losses. This was particularly true of freight and shunting services. In passenger service, which normally had the

lowest standby losses, this was not so marked. This situation is shown in Fig. 6 where the percentage of total heating value charged to the steam and diesel-electric locomotive is shown in relation to the total service rendered by the diesel-electric locomotive.

This shows that in freight and passenger service the diesel-electric had taken over some 45 per cent of the service before there was a marked decrease in the percentage of the total heat value consumed by the steam locomotives. In shunting service this did not occur before 60 per cent of the service had been given up to the diesel-

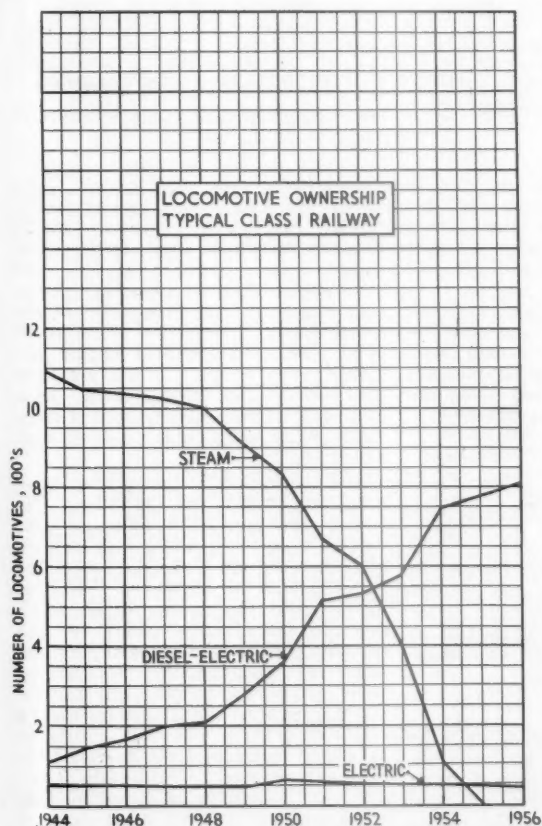


Fig. 3—Locomotive ownership, showing variations in electric, steam, and diesel-electric units

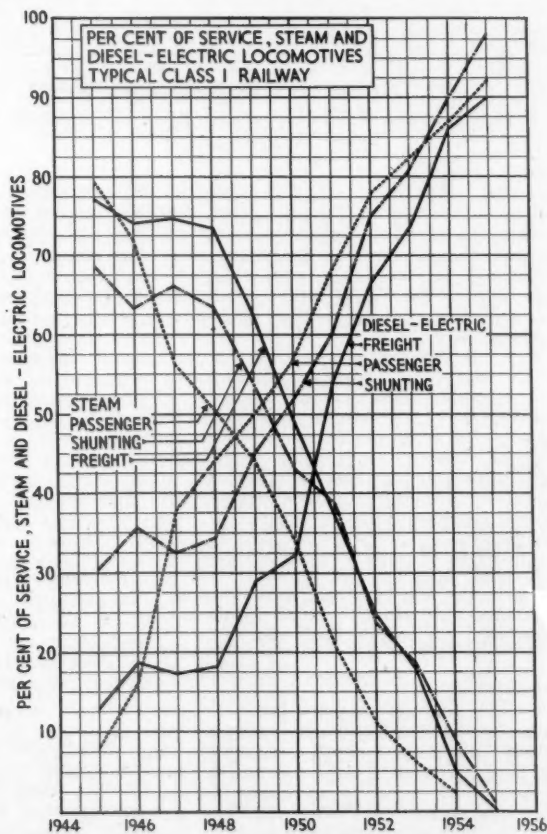


Fig. 4—Percentage of service, shunting, freight, and passenger services of different units

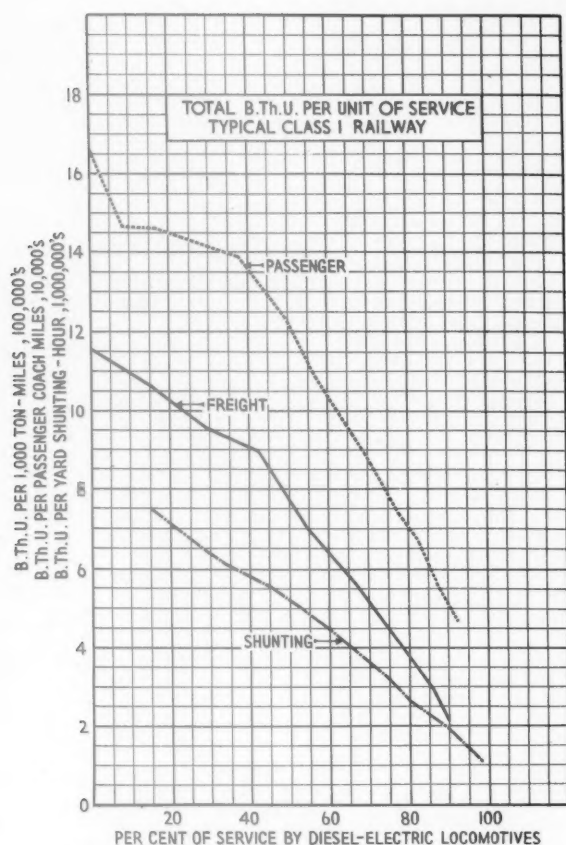


Fig. 5—Total B.Th.U. per unit of service, diesel-electric locomotives

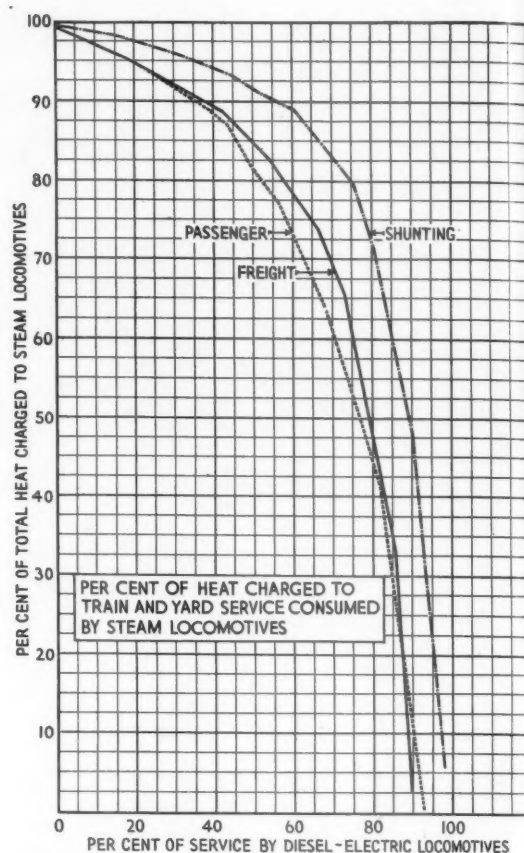


Fig. 6—Percentage by heat, showing decrease in consumption by steam locomotives

electric. The cost of fuel also reflects this situation. In 1950, when the diesel-electric had taken over more than 50 per cent of passenger and shunting services and more than 40 per cent of the freight service, the total cost of fuel charged to train and yard service was:—

Fuel	Total cost	Per cent of cost
	\$	
Coal	10,407,229	61.1
Fuel oil	845,084	4.9
Diesel fuel ..	4,463,386	26.1
Elec. power ..	1,350,587	7.9
	17,066,286	100

Even in 1952 when about two-thirds of the freight service and three-quarters of the passenger and shunting services were being handled by diesel-electrics, the cost of fuel was:—

Fuel	Total cost	Per cent of cost
	\$	
Coal	5,428,179	38.4
Fuel oil	441,533	3.1
Diesel fuel ..	6,970,673	49.3
Elec. power ..	1,306,863	9.2
	14,147,248	100

Thus, in 1950 the railway was paying about \$11,250,000 for steam locomotive fuel or 66 per cent of the fuel

bill for which it received less than 50 per cent of the service. In 1952 for less than 30 per cent of the service, the steam locomotives were charged with about \$5,870,000 or 41.5 per cent of the total fuel bill.

If the ton-miles, passenger car-miles, and yard shunting hrs. produced by steam locomotives had instead been produced by diesel-electric locomotives at the same unit rates and costs, the total fuel costs would have been:—

		Reduction
	\$	\$
1950	9,632,100	7,434,200
1953	10,180,000	3,977,000

Obviously with savings in the cost of fuel of such magnitude, the railway could not afford to continue steam locomotives in service and turned to the diesel-electric as rapidly as circumstances permitted.

Equipment

Thus far we have discussed only the fuel savings accomplished by the diesel-electric. With the elimination of steam locomotives it was possible to abandon steam locomotive facilities, the operation and maintenance of which represented considerable annual expenditure. At terminal stations such facili-

ties included coal shed, or oil tanks, boiler washing plants, water tanks, pumps and water treating plants. Between terminals, coal sheds, water stations and treating plants were eliminated, while in main-line operation where the full capabilities of the diesel-electric locomotive were developed, many intermediate engine terminals were retired. It was also possible, with the diesel-electric locomotive, to retire vast amounts of forge shop, boiler shop, and machine shop equipment.

The diesel-electric locomotive, however, introduced new problems. In general the familiar roundhouse gave way to a servicing house with elevated platforms of deck height, depressed floors below the platforms, improved lighting and ventilation, all of which required considerable outlay of new capital. While the consumption of water was tremendously reduced, the water for diesel engines and for the steam generators used for train heating required entirely different treatment. In many instances total demineralisation was resorted to, with after treatment for prevention of corrosion. Fuel tanks replaced the coal sheds or heavy fuel oil storage tanks were modified for the diesel oil.

(Continued on page 741)

Bogie Wagons for Carrying Chlorine

Tanks of all-welded construction borne on fabricated saddles



Chlorine tank wagon, showing prefabricated steel saddles

A CONSIDERABLE increase in the total output of chlorine by Murgatroyd's Salt & Chemical Co. Ltd., of Elworth, Sandbach, Cheshire, and the amount sent by rail as liquid to British Geon Limited, Barry, Glamorgan, created a problem of providing adequate rail transport.

High Capacity Tanks

Previously, liquid chlorine was carried in rail tank wagons, each with a capacity of 13½ tons, and it was considered whether tank wagons of a much higher capacity could be used with a resultant reduction in transport costs. After consultations with the British Transport Commission, it was agreed that tank wagons of a much

higher capacity were practicable, and as a result the L. & Y. Wagon & Engineering Co. Ltd., Heywood, Lancashire, designed and built a series of tank wagons of 35 tons capacity, the tanks being supplied by John Thompson (Wolverhampton) Limited, to Class 1 construction. A fleet of these wagons is now in commission regularly handling the traffic between Sandbach and Barry.

Standard Bogies

The tank wagons are 30 ft. 10 in. long over headstocks with an overall height of 12 ft. 6 in. Self-contained buffers are fitted, and also screw couplings. The underframes are mounted on two standard British Railways bogies

of 5-ft. 6-in. wheelbase, with 10-in. × 5-in. journals, and white metal bearings. Underframes and bogies of riveted construction are made from steel plate and rolled steel sections. Tanks are mounted on eight fabricated steel saddles, lined with a 1½ in. thick layer of Mascolite, bolted to the saddles.

The tanks, 6 ft. 9½ in. dia., are of all-welded construction, rolled from ¼ in. thick plate with ½ in. thick dome ends. They are designed to the requirements of the Compressed Gas Containers Regulations for a working pressure of 174 lb. per sq. in. gauge and a test pressure of 400 lb. per sq. in. gauge. The tare of the wagon is approximately 27 tons, giving a total weight when loaded of 62 tons.

Abandonment of Steam Power in the U.S.A.-3

(Continued from page 740)

In most instances large repair shops, built originally for steam locomotives, were satisfactorily converted for general repairs to the diesel-electric. New machine tools were, of course, required, and electrical repairs, which on steam locomotives were insignificant, assumed a major rôle.

Future Developments

What type of motive power will be developed to challenge the diesel-electric? To date, the coal-burning gas-turbine has not been placed in any railway service. Its sole claim to any consideration is the return to coal as a fuel, which still has the lowest cost based on heat value. The average cost per million B.Th.U. on typical U.S.A.

railways over the past decade or so, was only about one-third of that of diesel fuel oil. In its proper sphere, i.e. in service where the load factor on the gas-turbine is high, this type of motive power has demonstrated its practicability on the Union Pacific Railroad, where 25 oil-burning locomotives have been in service for several years. The railway has recently placed orders for 15 additional gas-turbine-electric locomotives, with the expressed intention of adding another 15, or a future total of 55 locomotives. By the addition of large fuel tenders reclaimed from steam locomotives, these engines can operate over very long distances without stops for fuel.

It does not appear at the moment that the gas-turbine, either coal or oil-burning, will replace the diesel-electric in general service because of the poor efficiency of any turbine engine at low

loads. Neither does it appear that there will be any radical improvement in the thermal efficiency of the diesel engine as a prime mover. However, it appears possible that the diesel engines now in service on locomotives can burn far heavier and cheaper fuel oils than the highly refined fuels originally deemed necessary. Work on this is progressing satisfactorily, even to the extent of the successful use of the extremely heavy fuel oils which were formerly used in the fireboxes of steam locomotives.

Atomic power for locomotives is a rather live subject, and while there appears little possibility of this accomplishing a lower cost of fuel per unit of service, its possibilities are being advanced as a means for conserving the natural fuels, particularly those derived from petroleum.

(Concluded)

Signalling Developments on S.N.C.F. Lines

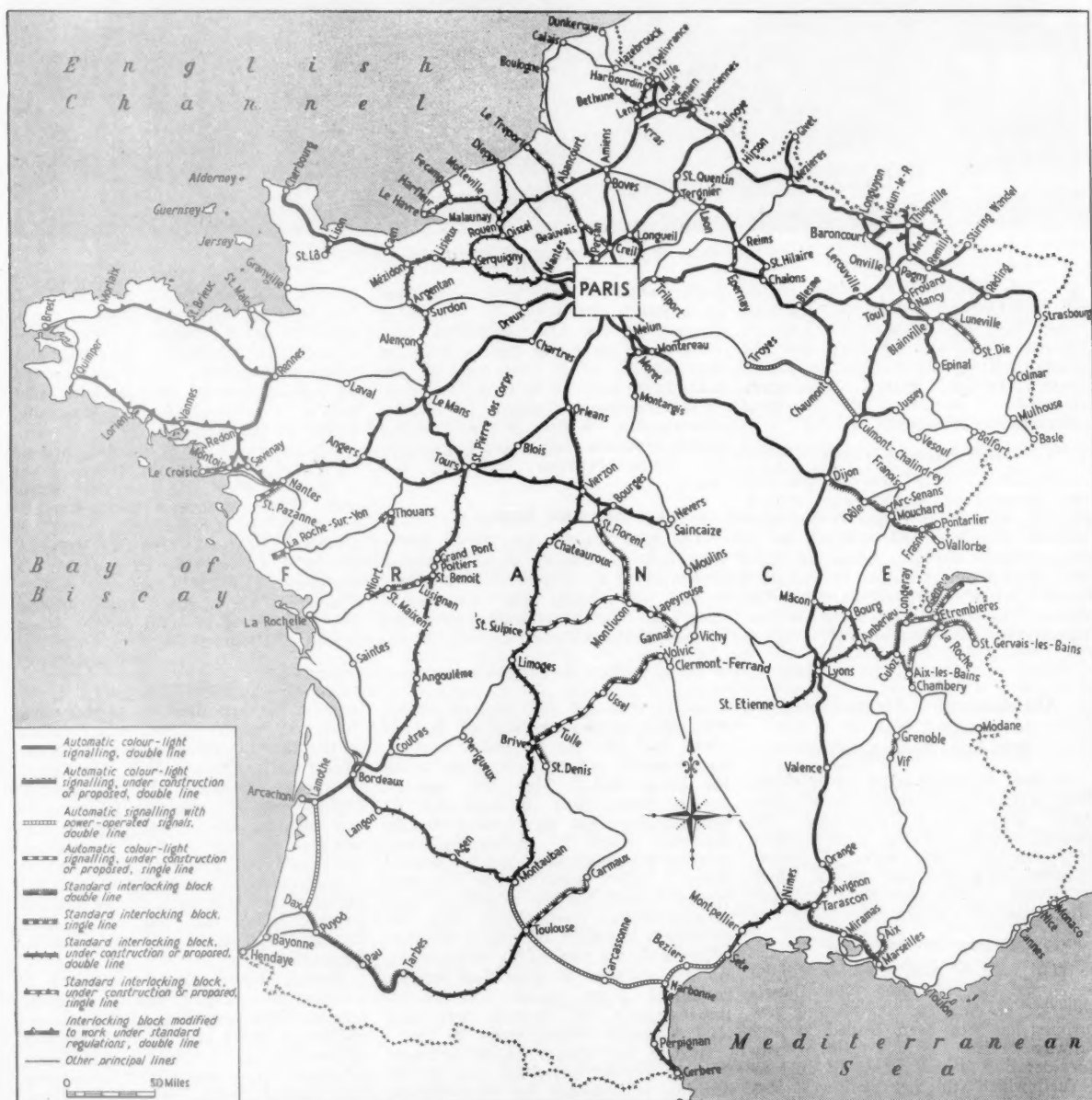
Extension of colour-light signalling, relay interlocking, and improved block working and level crossing protection

THE French National Railways, as reported in our columns from time to time, have pursued steadily since the war a policy of signalling modernisation and standardisation, partly in connection with the considerable extension of electrification which has taken place but also to an appreciable extent apart from it. Much equipment was calling for replacement, having been in service for many years,

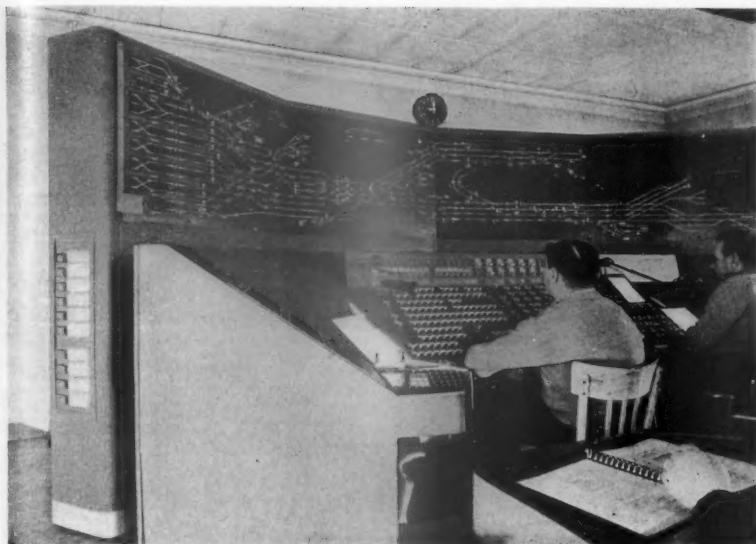
and opportunity was taken to adopt the most up-to-date principles and designs. Numerous types of signal and block apparatus were in use, derived from the days of the original separate railway companies, creating difficulties in maintaining them under a unified system and of course necessitated carrying a great variety of replacement parts.

Varying rules and instructions also

were necessary. These differences were especially marked in the case of the former Alsace-Lorraine lines, where signalling, block working and operating methods were based on Central European practice. Uniformity was obtainable only by slow degrees, but wherever colour-light signalling was installed it was possible to introduce standard aspects, while where the old manual block fell due for renewal



Map of principal S.N.C.F. lines showing the various forms of automatic and other signalling now in service



Interior of "P.R.S." type relay interlocking signalbox at Marseilles, showing track diagram and push-button desk

and was not to be superseded by automatic signalling a standard type, worked by impulse currents and relay controls, could be installed, and a considerable amount of such work has already been carried out. In this article we are enabled, by the courtesy of Monsieur J. G. Walter, Chief of the Signalling Department, S.N.C.F., to give some particulars and illustrations of the progress accomplished to date.

Automatic Signalling: Block Working

In 1945 there were already some 1,550 miles equipped with automatic colour-light signals and also, it may be mentioned, an appreciable mileage of power-operated automatic signals of ordinary type. Since then some 840 miles of double line have been equipped with colour-light signalling, and 313 miles of double and 621 miles of single line with the standard relay pattern interlocking block. Work for which authority has been given will shortly bring these figures to 1,180, 1,550 and 808 miles respectively. On about 1,120 miles of double line the old forms of block apparatus have been reconditioned and modified in such a way as to enable block regulations to be introduced corresponding to those in force with the new standard apparatus, simplifying accordingly the tasks of the staff.

The greater part of this work has involved installations of the Lartigue electro- semaphore block, widely used by some of the former companies, but not always operated by them in exactly the same way. On some routes there was a very complete form of electro-mechanical sequential locking and on others none, while again some sections had treadle control by the passing train and others none. This type of block, which differed considerably from anything known in Great Britain, had its

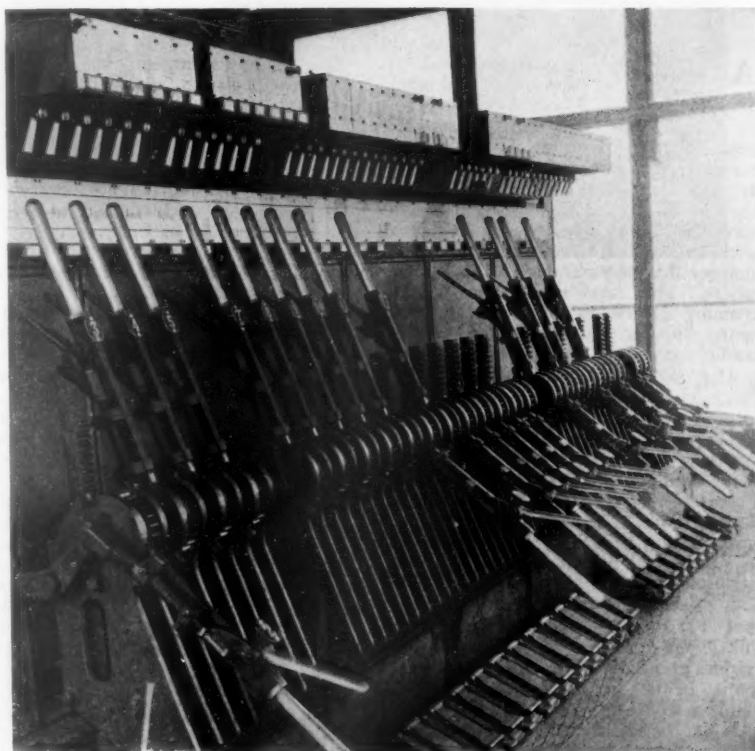
own advantages and disadvantages, but by a little careful re-arrangement it has been possible to eliminate the latter and bring the equipment into line with modern requirements. Control by the passing train is being applied generally, while the operation of the signal—always of semaphore type—controlling

the entrance to a block section is being arranged to afford greater flexibility of operation and eliminate difficulties hitherto arising when some unusual movement requires to be made in emergency, or a failure in the working unfortunately occurs. The method of actuating the semaphore itself and effecting the block signalling operations is being modified by substituting modern equipment—push buttons, electric indicators, etc.—for apparatus dating back well into the last century.

Power Signalboxes

The S.N.C.F. has developed its own form of all-electric relay interlocking, actuated by free desk mounted push-buttons, incorporating route setting with pre-selection facilities, and complete sectional route release controls. These signalboxes are known as the "P.R.S." type, (*postes tout relais à transit souple*) and 50 are now in service, varying in size from as few as four to 380 routes. In certain cases one or more areas in the layout are remotely controlled from the main signalbox.

To deal with layouts of fair size and importance where, however, the use of all-electric P.R.S. type equipment cannot be justified a standard form of electro-mechanical signalbox has been designed in which points and signals are actuated either by ordinary full size levers of the half-revolution type, using either rodding or double wire transmissions, or by small levers spaced at

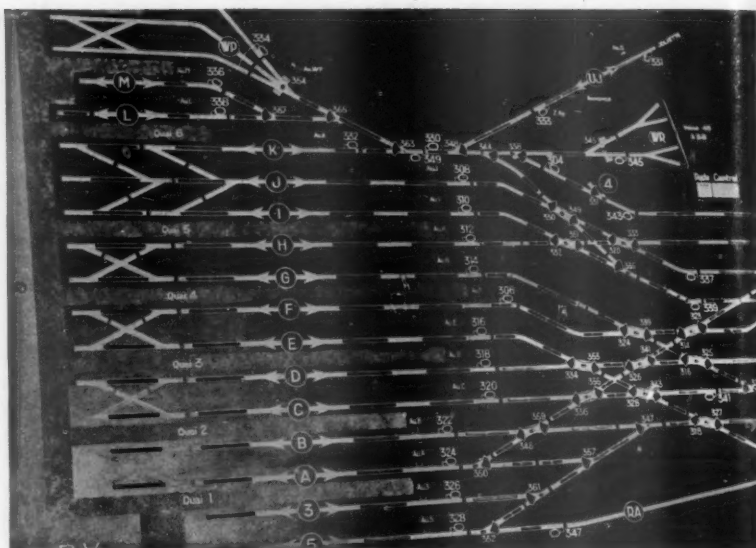


Electro-mechanical signalbox at Bobigny, showing miniature electric levers ranged over mechanical point levers

2½ in. centres, mounted above these and operating the outside equipment electrically, providing a mixed form of working. There are 49 such boxes in service, varying from 45 to 180 levers, equal in length to 15 to 60 full size levers at 5 in. centres. In this case mechanical interlocking is used.

Level Crossings

Of recent years much attention has been given to the problem of level crossings, in an endeavour to reduce the expense associated with them, while obtaining the maximum protection possible for both road and rail traffic. A number of non-attended crossings have been equipped with automatic treadle actuated warning apparatus and half-barriers, with red flashing lights and loud sounding bells. The treadle which sets the apparatus in action and lowers the barriers is so located that a minimum warning of 25 sec. is given of the approach of the fastest train. The red lights appear and the bell commences to ring immediately the treadle is reached and 5 sec. later the barriers descend, taking 4 sec. to do so. As soon as they are down the bell stops, immediately the tail of the train has cleared the crossing the lights are extinguished and the barriers raised again. There are 700 crossings equipped in this



Part of the illuminated track diagram in the Marseilles "P.R.S." type signalbox

manner, some on double, some on single line, and 300 more installations will shortly be completed. Where there is a gate-keeper on duty the treadles

operate an indicator and sound a bell in the gatehouse, separately for each direction of traffic. Many installations of this type also are in service.

Unusual Welded Overline Viaduct

Curved 234-ft. suspended-and-cantilever span

A DIFFICULT problem and its unusual solution mark the spanning of the multi-track Erie Railroad by a new New York State "thruway" near Suffern. To swing round from its north-south direction in order to approach the Tappan Zee bridge over the Hudson River in an east-west direction, the thruway had to be located with a 2,000-ft. rad. curve, slightly sharper than the standard adopted elsewhere. This curve necessitated a skew crossing of the railway with a single span, dictated by congestion of rail traffic, measuring 234 ft. on the skew.

The skew and the curve together made it impossible to use continuous girders, and to conform to the thruway level and yet provide the necessary 22-ft. 6-in. headway over the railway very shallow construction depth was essential. Accordingly, the New York State Public Works Department, who designed and built this structure, decided to use a multi-girder all-welded suspended span 134 ft. long between 50-ft. cantilevers extending from adjacent 125-ft. anchor spans. Actually, this 234-ft. opening is part of a curved viaduct about 800 ft. in length, the other spans being the two 125-ft. anchor spans, a 97-ft. 6-in., a 117-ft. 6-in., and a 110-ft. span, the three latter being simply-supported. This superstructure rests on piers each consisting of 14 reinforced concrete columns founded

on cast-in-situ concrete piles driven to 30 tons minimum resistance at from 10-ft. to 45-ft. depths.

Longest All-welded Span

The roadway consists of two 60-ft. three-lane decks side by side, each carried on seven welded plate girders spaced 8 ft. 4 in. apart centre to centre. Over the railway the 14 suspended and cantilever girders form the longest all-welded single-web plate-girder span in existence. The 134-ft. suspended girders are only 4 ft. 8 in. deep, but the cantilever-anchor girders taper in a curve from this depth to 11 ft. over the piers.

The webs of these unusual suspended girders are ½ in. and ¼ in. thick, but the flanges vary from ¼ in. to 3 in. in thickness and are 18 in. to 24 in. in width. The webs have vertical stiffeners on both sides except in the case of the two outermost girders, where there are horizontal stiffeners on the outside to improve the appearance of the span. Both shop and field welding was mainly of the fillet type, but at the critical parts of the special bearings, described below, butt and fillet welding were combined.

Each suspended girder is seated on the corresponding cantilevers with special supports to suit the bridge curvature and to obviate torsion. The girder-ends are notched out or stepped to

carry a rocker-bearing at one end and one of the sliding type at the other; they are specially stiffened and strengthened to allow for their reduced depth.

The decking consists of 7½ in. of reinforced concrete covered with a 4-in. concrete wearing surface. Expansion at each of the two joints is allowed for in a ½-in. × 11½-in. steel plate sliding in a slot or recess, and is caulked with rubberised asphalt to make the joints watertight.

In this bridge 3,100 tons of structural steel, 675 tons of bar reinforcement, 7,300 cu. yd. of concrete, and 32,000 lin. ft. of piles were used. The viaduct was designed according to American Association of State Highway specification H20-S16 live loading, and the welding according to the American Welding Society specification—except as mentioned above in the bearings—using electrodes with coverings of the low-hydrogen type.

METROPOLITAN-VICKERS TRANSFORMER DEPARTMENT.—Metropolitan-Vickers Electrical Co. Ltd. has announced that the postal address of the Transformer Department is now Metropolitan-Vickers Electrical Co. Ltd., Transformer Department, Southmoor Road, Wythenshawe, Manchester, 23. For cables and telexes, the Department is continuing to use the Trafford Park address: Metrovick Manchester Telex 66-314.

RAILWAY NEWS SECTION

PERSONAL

Sir Ronald Matthews has been elected Vice-Chairman of the Legal & General Assurance Society.

The Rt. Hon. Henry Willink, M.C., Q.C., Member of the Eastern Area Board, British Transport Commission, who, as recorded in our June 21 issue, has been awarded a Baronetcy in the Birthday Honours List, was

Town Waterworks Company, and Chancellor of the Dioceses of Norwich and St. Edmundsbury and Ipswich. He was appointed a member of the Eastern Area Board of the British Transport Commission as from January 1 last year.

Captain Sir Ian Bolton, Bt., O.B.E., Chairman of the Scottish Area Board of the British Transport Commission, who, as recorded in our June 14 issue, has been

Mr. T. Crosbie, Stationmaster, Glasgow St. Enoch, Scottish Region, British Railways, is retiring tomorrow, June 29. Mr. Crosbie began his railway career at Dumfries in 1908. He became Stationmaster, Bellahouston & Corkerhill, in 1933; Stationmaster & Goods Agent, Carlisle, in 1938; and Assistant Stationmaster, Glasgow St. Enoch, in 1943. He was appointed Relief Head Office Inspector, Operating Manager's Office, Glasgow, in 1946, and Stationmaster at



The Rt. Hon. Henry Willink

Who has been awarded a Baronetcy in the Birthday Honours List



Captain Sir Ian Bolton

Who has been awarded a K.B.E. in the Birthday Honours List

born in 1894 and educated at Eton and Trinity College, Cambridge. During the 1914-18 war he commanded a battery of field artillery in the Battle of the Somme and for the remainder of the war, and was awarded the M.C. and French Croix de Guerre avec Palme. He was called to the Bar in 1920. His legal practice was principally concerned with commerce, shipping, and insurance. Mr. Willink was a Special Commissioner for the London Region during 1940-43, with general responsibility for the welfare and re-housing of bombed-out people in the Greater London area. He was Member of Parliament for Croydon (North Division), 1940-48; High Bailiff of Westminster, 1943; Minister of Health, 1943-45 (during which period he introduced the White Paper which initiated the National Health Service); a Director of the former Southern Railway Company, and Chairman of the Royal Commission on Betting, Gaming & Lotteries which was appointed in 1949. He is Master of Magdalene College, Cambridge, Chairman of the Cambridge University &

awarded a K.B.E. in the Birthday Honours List, was born in 1889 and educated at Eton. During the 1914-18 war he served with the Argyll & Sutherland Highlanders and was mentioned in dispatches. Sir Ian Bolton is Lord Lieutenant of Stirlingshire, and a member of McClelland, Ker & Co., Chartered Accountants at Glasgow. His directorships include those of the Scottish Widows' Fund & Life Assurance Society, the Scottish American Investment Co. Ltd., Coltness Iron Co. Ltd., Hamilton & Kinneil Estates Limited, British Polar Engines Limited, Beckett & Anderson Limited, and Ioco Limited. He is President of the Institute of Chartered Accountants of Scotland, President of the Scottish Council of the Boy Scouts Association, and County Commissioner of Stirlingshire Boy Scouts. A part-time member of the B.T.C. since 1947, he was appointed Chairman of the Scottish Area Board as from January 1, 1956.

Mr. Frederick Cooper has been appointed Chief Draughtsman of F. Perkins Limited.

Paisley Gilmour Street in 1950. He became Stationmaster at St. Enoch Street, Glasgow, in 1952.

Birthday Honours of transport interest not included in our earlier lists are as follow:

Sir Horace Evans, Medical Consultant to the London Transport Executive, has been awarded a Baronetcy.

Dr. P. P. Howkins, Divisional Medical Adviser, Eastleigh, Southern Region, British Railways, and Mr. F. W. Townsend, Experimental Manufacturing Manager of the Aircraft & Automotive Group of the Plessey Co. Ltd., have both been awarded the M.B.E.

We regret to record the death on June 14, at the age of 34, of Mr. Cyril Bishop, A.M.I.Loco.E., Chief Railcar Designer of D. Wickham & Co. Ltd. Mr. Bishop joined the company in 1936 and, after receiving early technical training in the works, was promoted to the drawing office, where his exceptional abilities were soon apparent

At a recent meeting of the Joint Ports Committee of the Industrial Association of Wales & Monmouthshire, Group Captain G. B. Bailey and Mr. W. Jeffers, Chief Docks Manager, South Wales Ports, were unanimously re-elected Chairman and Vice-Chairman respectively for the ensuing year. Mr. W. R. L. Stevens, South Wales Area Officer of British Railways, was elected a member of the Committee.

Mr. R. P. Biddle, C.B.E., T.D., J.P., Docks & Marine Manager, Southampton, from 1936 until his retirement in September

for the North-West Ports. He was awarded the C.B.E. for services in connection with the planning of the Normandy Invasion. Mr. Biddle is an Officer of the Legion of Honour, Chevalier of the Order of Leopold, and holder of the American Medal of Freedom with silver palm. He is also an Officer of the Order of St. John and holds the Territorial Decoration, with the rank of Lieutenant-Colonel in the Engineer and Railway Staff Corps (R.E.). He has been a member of the B.T.C. Docks Management Board, is a Justice of the Peace for the Borough of Southampton, a Governor

Mr. C. J. Geddes, C.B.E., part-time Member of the London Transport Executive, who, as recorded in our June 21 issue, has been awarded a Knighthood in the Birthday Honours List, was educated at Blackheath Central School. After service with the Post Office he became Assistant Secretary of the Staff Side of the Civil Service National Whitley Council and Assistant General Secretary of the Union of Post Office Workers. He served in the 1914-18 war with the Royal Flying Corps. Mr. Geddes is the General Secretary of the Union of Post Office Workers, a Member



Mr. R. P. Biddle

Who has been awarded a Knighthood in the Birthday Honours List



Mr. C. J. Geddes

Who has been awarded a Knighthood in the Birthday Honours List

last year, who, as recorded in our June 21 issue, has been awarded a Knighthood in the Birthday Honours List, began his career with the London & South Western Railway in Jersey in 1905. Early in 1907 he was transferred to Southampton, with which town he was subsequently to become so closely associated. Mr. Biddle was commissioned in the Hampshire Territorials in 1915; served with his Battalion in India, and, subsequently, with the Expeditionary Force in Palestine until his unit was disbanded. He was appointed to the Embarkation Staff, and, when demobilised in 1920, was in charge at Port Said. On return to civil life he was appointed Personal Assistant to the Docks & Marine Manager, becoming Assistant Docks & Marine Manager in 1933, and Docks & Marine Manager in 1936. In 1941 his services were loaned to the Ministry of War Transport with which Ministry he became Deputy Director of Ports. He resumed his appointment as Docks & Marine Manager in October, 1945, after having been Regional Port Director

of Southampton, Vice-Chairman of Southampton Harbour Board and Chairman of the Southampton Port Employers' Association.

The British Transport Commission announces that Mr. B. X. Jessop, Acting Commercial Manager, Liverpool Street, Eastern Region, British Railways, has been appointed Assistant Traffic Adviser (Passenger) at the Commission's Headquarters in London. The appointment is also announced of Mr. S. B. Yentis as Works Study Assistant. Mr. Yentis is at present Head of Work Study Department, Unilever Limited.

The following positions in the Manpower Adviser's Department of the British Transport Commission have been re-designated:—

Mr. D. Robertson, Establishment & Staff Officer, to be Principal Establishment & Staff Officer.

Mr. R. Byron-Scott, Staff Officer (Pensions & Compensation), to be Principal Pensions Officer.

of the General Council of the Trades Union Congress, and T.U.C. representative on the Government Economic Planning Board. He is also Vice-Chairman of the Post Office Departmental Whitley Council, a Member of the Staff Side of the Civil Service National Whitley Council, President of the Postal Telegraph & Telephone International, and President of the European Zone, International Confederation of Free Trade Unions. He was appointed a part-time Member of the London Transport Executive as from January 1, last year.

Mr. J. W. Watkins, Member of the British Transport Commission, has been appointed a member of the Industrial Coal Consumers' Council.

Mr. H. Scully Assistant (Outdoor) to Public Relations & Publicity Officer, London Midland Region, British Railways, has been appointed Publicity Assistant to the Public Relations & Publicity Officer, Western Region, British Railways.

Mr. R. McWhirter has been appointed Sales Manager of the Engineering Division of Dobbie McInnes Limited.

Mr. V. Chidgey has been appointed Technical Representative for Wales for Martonair Limited.

Guest Keen & Nettlefolds (South Wales) Limited announces that Mr. E. O. Unsworth, Commercial Manager, and Mr. P. J. Tombleson, Secretary, have been appointed to the board of the company.

Mr. L. V. Dealtry, Industrial Representative in Leeds for the Mobil Oil Co. Ltd. for the past 29 years, has retired. To mark the occasion, a presentation was made to him at a luncheon party given in his honour at the Queen's Hotel, Manchester.

Mr. W. J. P. Webber has been appointed to the Advisory Council of the Export Credits Guarantee Department, succeeding Mr. H. Douglass, who has resigned owing to pressure of other commitments. Mr. Webber is General Secretary of the Transport Salaried Staffs' Association.

Mr. E. B. James, at present Purchasing Manager of Fina Petroleum Products Limited, will join the staff of the B.E.T. Federation Limited on September 1 with a view to his appointment as Chief Purchasing Officer of the Federation early in 1958, on the retirement of Mr. K. C. Wheatley.

Mr. Robert O. Bodell has been appointed Superintendent, Chicago Terminal, of the Illinois Central Railroad. He has been succeeded as Superintendent of the East St. Louis Terminal by Mr. Harry R. Koonce, Trainmaster at Chicago. Mr. Joe A. McDaniel succeeds Mr. Koonce at Chicago.

Mr. Victor Neale, General Production Controller of Geo. Salter & Co. Ltd., has been awarded a travel scholarship by the Birmingham College of Technology in connection with his work in the Department of Industrial Administration. He will use his grant travelling in Great Britain to meet members of the British productivity team which went to the U.S.A. in 1951 to study American methods of production control. During the past year Mr. Neale has been visiting lecturer on production control at the Birmingham College of Technology.

Mr. R. J. Haxby, District Estate Surveyor, Victoria, Southern Region, British Railways, has been appointed Assistant to Estate & Rating Surveyor, Victoria, with effect from June 24.

Mr. T. D. Slattery, who retired at the beginning of this year from the position of General Traffic Manager, British & Irish Railways, Inc., New York, was recently the recipient of a farewell gift subscribed by members and officers of the B.T.C. and C.I.E. Mr. Slattery has completed a long and distinguished career, for the past 10 years of which he represented the British Transport Commission and Coras Iompair Eireann in North America. Mr. F. A. Pope, President of British & Irish Railways Inc., presided at the function, the presentation—a cheque for the purchase of a television set—being made by Sir John Elliot, Chairman of the London Transport Executive. The accompanying photograph shows (left to right): Mr. D. Stewart, Traffic Manager, C.I.E.; Mr. T. D. Slattery; Mr. F. A. Pope; Sir John Elliot; Mr. C. P. Hopkins, General Manager, Southern Region, and Mr. David Blee, General Manager, London Midland Region.

Mr. A. J. Vening and Mr. T. S. Spurling have been appointed directors of the Tilley Lamp Co. Ltd.

Sir Nevil Macready, Bt., has been appointed Manager of the Supply Department of the Mobil Oil Co. Ltd. He will report to Mr. J. A. Paul, who, since the beginning of this year, has carried out the dual function of Director & Manager of this department.

The British Aluminium Co. Ltd. announces the following appointments:—

Mr. S. M. Lawrence as Export Sales Manager with effect from June 1 succeeding Mr. P. J. Ferguson who has resigned to take up another appointment.

Mr. P. L. Martyn, Assistant Manager (Home Sales), will assume responsibility for unwrought and special products Sales Section in succession to Mr. Lawrence, while continuing to be responsible for sales promotion.

Mr. R. J. Walsh becomes Manager of the Manchester Branch Sales Office at 46, Fountain Street, Manchester 2, with effect from July 17, succeeding Mr. J. R. Whitelegg, who retires on that date.

From July 1, Siemens Brothers & Co. Ltd. and the Edison Swan Electric Co. Ltd. will merge into a single new manufacturing and selling organisation, Siemens Edison Swan Limited. The new company, which will make a wide range of products, possesses about 20 Regional offices. Lord Chandos, Chairman of the A.E.I. Group, of which Siemens Edison Swan Limited is a member, is also Chairman of the new company. Dr. J. N. Aldington has been appointed Managing Director, and the other Directors are Dr. T. E. Aldington, Messrs. J. S. A. Bunting, G. W. Giffin, W. H. Grinstead, L. S. Crutch, J. W. Ridgeway, J. T. Thornhill, W. G. Patterson, A. Whitaker, and (non-executive) R. L. Basset and A. F. Street.

Mr. Harold Saint, until recently Chief Sales Engineer, Electrical Division, Expanded Metal Co. Ltd., has been appointed Sales

Manager, Electrical Division, Fawcett Preston & Co. Ltd., a member of the Metal Industries Group. Mr. Saint has assumed control of all sales, design and development work related to the company's industrial, marine, and traction resistor production, services previously provided by the Igranic Electric Co. Ltd. The departments concerned will be established from August 1 this year. Before the recent war Mr. Saint was for 10 years with the Rheostatic Co. Ltd., the original makers of the equipment with which he is now concerned.

Television Demonstration on Swiss Railways

Demonstrations of the first battery-operated industrial television system, were arranged recently by Pye Limited to allow Swiss railway officers to assess the possibilities of television to increase efficiency and safety. The equipment is completely portable.

In Geneva the equipment, which operated off two 12-V. car batteries in series, was demonstrated, viewing rail alignment from a moving train; the track was watched on a receiver inside the train. The equipment can also be used for examining springs and other inaccessible parts.

The battery-operated equipment was also installed on a *tracteur*, a small petrol driven truck used as a service wagon. This demonstration showed how, fitted with a telephoto lens, the camera could be used to examine the insulators on the overhead connectors of the 15-kV. electrified system. This equipment could also be used for examining, from the track, the inside of viaduct arches.

Standard Pye industrial television equipment was also demonstrated. A camera, set up in a yard, viewed train destination and classification marks on wagons, and relayed the information by both day and night, to television receivers in a viewing room.

Presentation to Mr. T. D. Slattery



Mr. T. D. Slattery, retired General Traffic Manager, British & Irish Railways, Inc., receives a presentation on behalf of the B.T.C. and C.I.E. in North America from Sir John Elliot, Chairman of London Transport

NEW EQUIPMENT AND PROCESSES



Safety Feature Fuseboards

A RANGE of metal-clad fuseboards, suitable for use in railway workshops, maintenance depots and so on, which has a number of safety features, has been developed. The range will be known under the trade name of Red Spot.

Features which are designed to protect operating personnel from accident are that all live metal inside the board is insulated, that no live metal is exposed even when fuse carriers are removed, and that the operation of withdrawing or inserting the carrier, however performed, is rendered safe.

The incoming cable socket is enclosed in an insulating housing, designed to fit snugly over the cable insulation, and each

fuse fitting is provided with an insulating sleeve, to give adequate protection should the insulation on the outgoing cable be stripped back too far.

When cabling outgoing circuits the insulating shroud enclosing each fuse terminal can be removed without disturbing the shroud enclosing the busbar contact.

Red Spot fuseboards incorporate the manufacturer's type T H.R.C. non-deteriorating cartridge fuse links, all sizes of which have received ASTA Certificates of rating for category of duty 440AC5 to BS 88:1952 (that is 35 MVA. at 440 V., 3 phase).

Fuse terminals cater for single or multi-strand outgoing cables. Circuit labels have provision for inscriptions adjacent to fuse ways and are protected by transparent shields, and extra circuit labels can be fitted.

The fuseboard is reversible to obtain opposite hinging of door. The box exterior is smooth, with concealed hinges and flush push-button door catch; cases and doors are rust-proofed. The illustrations are a sectioned view of a fuse fitting with a carrier fully inserted showing the contact arrangement and insulated busbar, and a front view of an interior with cover removed from an incoming terminal housing.

The complete range comprises 15A., 30A., 60A., and 100A. ratings. The 30A. and 60A. sizes are available from stock.

Full details of the fuseboards may be obtained from the manufacturer, the English Electric Co. Ltd., Fusegear Division, East Lancashire Road, Liverpool.

Cantilever Shelving System

THE Spur shelving system, claimed to be the most economical of its type on the market, is being introduced. The system enables shelving to be erected in almost any situation, either as a permanent or temporary measure, and is suitable for stores, offices and so on.

The basis of the system is removable cantilever shelf brackets supported in slots either on a fitted upright which is screwed to a wall, or on a double-sided upright fixed to floor and ceiling.

The range of components includes standard right-angle brackets, from 5-in. to 18½-in. long, slanting brackets, which make an angle of 110 deg. to the vertical, book-end supports which can be used also for sub-dividing shelves, jointing plates for joining shelves into continuous lengths, and special units for use where shelving is required to be detachable from the bracket.

Flexibility of layout is possible, as the position of the shelves can be altered by simply moving the brackets up or down. Loading capacities of the brackets range from the 5 in. which can carry a load of 50 lb. to the 18½ in. size, which will support 160 lb.

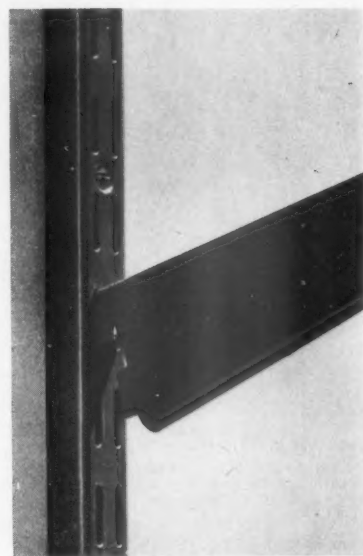
The wall supports are supplied in 12 standard lengths from 4½ in. to 94½ in., but special sizes are also available.

For situations where appearance is of importance, the rust-protected steel components are supplied stove-enamelled in grey, white, terra-cotta or black, but

alternative colours are available to special order. For purely utilitarian purposes, or where excessively damp or corrosive atmospheres are likely to be encountered, the components can be nickel- or chrome-plated or zinc sprayed and galvanised.

The illustration shows a close-up of the locking arrangement of the Spur bracket with a vertical member.

The cost of the components varies

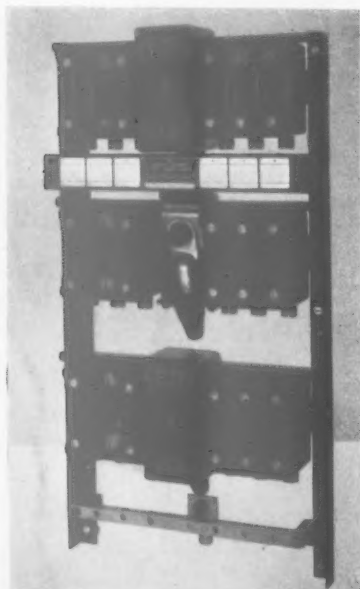


according to the size, but as an example a 39 in. length of wall upright would cost 9s. 1d.; 7 in. bracket, either right-angle or slanting, costs 3s., and an 80 in. length of double-sided upright costs 67s. 6d. Full details may be obtained from the manufacturer, Savage & Parsons Limited, Watford By-Pass, Watford, Herts.

Weld Spatter Adhesion Prevention

AN entirely different application for a silicone spray mould lubricant has been as a means of preventing spatter adhesion during welding operations. This lubricant is an aerosol-packed liquid with the trade name of Ambersil. Advantages of the product are that it can be left on the metal after welding has been completed; only a very thin film is needed, the aerosol dispenser assisting this to be obtained, and that it has a flash point of 600° F., which does not interfere with the weld and is resistant to the cooler spatter.

Ambersil Formula I is a pure methyl silicon fluid, with high lubricity, high heat resistance and low surface tension. It is colourless, odourless, non-toxic, water repellent, chemically inert and highly resistant to oxidation. It is packed in 12-oz. dispensers, which cost 16s. each in dozen lots and 15s. each in two dozen lots. Full details, including delivery, may be obtained from Amber Oils Limited, 11A, Albemarle Street, London, W.1.



Railway Charges Scheme in Operation

General intentions of the British Transport Commission in the application of the new methods of fixing charges

The B.T.C. (Railway Merchandise) Charges Scheme, 1957, which was confirmed by an Order of the Transport Tribunal dated December 31, 1956, comes into force on July 1. For the benefit of traders, the British Transport Commission has issued a booklet setting out the essentials of the scheme and explaining the intentions of the Commission under it. This booklet is being distributed to traders all over the country. The scheme was described in detail in our issue of January 11 last.

Detailed instructions to railway staff in the working of the new scheme have already been distributed all over the country, and key staff have been briefed.

The booklet explains that subject to the statutory provisions of the scheme itself, the Commission will charge commercial prices in the course of competition with other providers of transport, or when inducing traders to use the railway instead of their own vehicles. It will use its freedom from the restrictive effects of former legislation to develop the carriage by railway of traffic which is not now railborne but which is particularly suitable for the railway. Through service and price, it intends to persuade consignors to offer such traffic in loads and frequencies which make for economical working. It is the Commission's intention to develop to the full profitable lines of business.

Wagon-load Traffic

At the outset the Commission will continue to apply, subject to a businesslike review and adjustment later, all rates on coal, coke and patent fuel; all exceptional rates on mineral and merchandise traffic recorded as having been used between January, 1955, and July, 1957, except those recorded for consignments of less than one ton; and most livestock rates. This is subject to any increases which may become necessary to reflect increases in costs.

The retention in this way of nearly a million rates will provide for the vast majority of wagon-load consignments now going by rail. In other cases, traders will be able to get a rate quoted quickly by the appropriate office. The present contacts between traders and the railway organisation will be maintained and strengthened.

Except for traffic carried only at owner's risk, new charges will normally be quoted at Commission's risk, but the Commission will be prepared to quote owner's risk terms for certain types of traffic generally, and for other traffic on merits by arrangement. The general list will be available at all goods stations.

Small Consignments

In the case of small consignments up to one ton, by goods train, new scales of charges will be introduced on July 1, and these have been published. The charges will cover collection and delivery wherever this service is normally provided, but there will be no cartage rebates where the service is not used.

Traffic of normal bulk in relation to weight and bearing a normal claims risk will be charged on one scale. Other traffic, including dangerous goods, will be charged on a higher scale.

The scales will contain three levels of charges: (a) between principal stations; (b)

between a principal and a minor station; and (c) between minor stations. The charges in the scales will vary according to the weight of the consignment and the distance carried. The charges will normally be at Commission's risk.

Passenger-train Traffic

It is the Commission's intention to continue the existing scales for traffic by passenger train (except for returned

empties) and all those exceptional rates recorded as having been used between January, 1955, and July, 1957, subject to later review.

Flexibility

Nothing in the foregoing should be taken to suggest any departure from the arrangement of agreed flat rates and other special charges. The Commission makes it clear that it is out to develop any kind of special charging practice which is a good business proposition to both parties. Flexibility will be the keynote of future charging. The booklet also contains a list of district commercial officers of British Railways.

Closing Lines in Northern Ireland

Certain cross-border services to be discontinued from October 1

Speaking on the Second Reading of the Transport (Amendment) Bill in the Northern Ireland House of Commons recently, the Minister of Commerce, Lord Glentoran, said that more than 90 miles of rail track would be closed from October 1 next.

The lines from which it is proposed to withdraw services are: Portadown-Armagh-Tynan; Omagh-Enniskillen-Newtownbutler; and Bundoran Junction-Belleek. These changes will cut off rail services from a number of towns and villages, including Armagh and Enniskillen.

Under Acts passed by the Northern Ireland and Republic of Ireland Governments in 1953 setting up the Great Northern Railway Board, the Government which declines to allow the closure of a cross-border service must recoup to the Board any losses sustained by the continuance of the service. The abandonment of these railway services was first proposed by the Northern Ireland Government in 1955, but the Republic of Ireland Government opposed the step.

Lord Glentoran stated that he understood that the Republic of Ireland Government felt unable to support the burden of losses on the lines, and so it was mutually agreed that closure should take place from October 1, 1957. The Board trading loss for the year ended September 30, 1956, was £831,285.

Arrangements have yet to be made for dealing with the problem of providing alternative services after the closure of the lines and also with the question of redundancy of railway staff.

A statement issued in Dublin by the Republic of Ireland Government stated there was no practicable alternative to concurring in the closing of the lines. The Northern Ireland Minister of Commerce had given notice of his desire that the statutory agreement between the Ministers under which the G.N.R. is at present operated should be terminated in October, 1958, when the initial five-year period for which the agreement was made would expire.

The statement continued: "The Government has given very careful consideration to the situation brought about by these decisions of the Six-County Government. After full examination of all the factors involved, it has been forced to the conclusion that there is no practicable alternative to concurring in the closing of these lines.

"At arriving at this decision the Government had regard particularly to

the following considerations—(a) the Six-County authorities have announced their intention to remove all restrictions on the transport of goods by road in that area. This would mean completely unrestricted competition with the railway.

"In that situation it would clearly be impossible to reduce the present heavy losses on operation. On the contrary, greatly increased losses could scarcely be avoided even should substantial capital expenditure be incurred on modernisation.

"The possibility of the termination of the G.N.R. agreement as from October, 1958, would remove any assurance that the lines in the Six Counties could be continued in operation after that date, even if the Government were prepared to meet the heavy losses on operation, and would of course, make impracticable a programme of capital expenditure directed towards the modernisation of the lines.

"In 1955 the losses incurred in the Six Counties on the three lines amounted to £221,000. The trend since then has been towards heavier expenditure, reduced traffic and, therefore, heavier losses. The decontrol of road transport in the Six Counties would, of course, worsen the position substantially.

"The passenger and freight transport difficulties and other problems, which will be created by the closing of the lines, are receiving the active consideration of the Government."

B.E.T. RESULTS FOR 1956-57.—The aggregate group profits of the British Electric Traction Co. Ltd. for the year ended March 31 last are £3,923,135, compared with £3,445,040 for the previous year. After providing £1,782,872 (£1,534,667) for taxation, the group net profit is £2,140,263 (£1,910,373). Allowing for minority interests in subsidiaries, £371,238 (£265,315), the proportion attributable to the parent company is £1,769,025 (£1,645,058). The Directors recommend a dividend on the 6 per cent cumulative participating preference stock, on account of which 3 per cent has already been paid, of 8 per cent, requiring £32,786. On the 8 per cent non-cumulative preferred ordinary stock, on account of which 4 per cent has already been paid, they recommend 8 per cent, requiring £61,008, and on the £7,470,768 of deferred and "A" deferred ordinary stocks, on account of which 7½ per cent has already been paid, they recommend 25 per cent, requiring £1,073,923.

Conference of General Managers of Railways in Southern Africa

*Increasing line capacity : motive power : industrial
safety : civil and mechanical engineering questions*

The third Conference of General Managers of Railways in Southern Africa was held at the Victoria Falls, Rhodesia, on June 12-15. Rhodesia Railways acted as hosts, and the guests were welcomed by Lt.-Colonel H. B. Everard, General Manager of the Rhodesia Railways, who was unanimously elected Chairman in succession to Sir Arthur Kirby, General Manager of East African Railways & Harbours. The conference was attended by the following:—

Compagnie du Chemin de Fer du Bas-Congo au Katanga (Bas-Congo—Katanga Railway)

Messieurs G. Wenes, Director General in Africa; J. Pierre, Director of Stores; Charles Dermond, Chief Engineer;

Companhia do Caminho de Ferro de Benguela (Benguela Railway Company)

Colonel R. J. Walker, Executive Director; Engineer Augusto Bandeira, Chief Civil Engineer; Engineer Massano de Amorim, Assistant Mechanical Engineer;

Compagnie des Chemins de Fer du Congo Supérieur aux Grands Lacs Africains (Upper Congo-Great African Lakes Railways)

Messieurs E. Bruart, Deputy Director General; L. Bouvry, Chief Engineer;

Direcção dos Serviços dos Portos, Caminhos de Ferro e Transportes da Província de Moçambique (Mozambique Ports, Railways & Transport)

Engineer F. F. Pinto Eliseu, Acting Director General; Engineer F. A. Soares Seixas, System Manager, Lourenco Marques; Engineer F. V. Ramalho, System Traffic Manager, Lourenco Marques; Engineer F. Camilo Teixeira, Permanent Way Manager, Lourenco Marques; Engineer A. P. Gomes Teixeira, Workshops Manager, Beira; Major L. F. Azinhais Mendes,

Commercial Assistant; Senhor M. Vicente Giesteira, Secretary;

East African Railways & Harbours

Sir Arthur Kirby, General Manager; Messrs. J. Hudson, Chief Mechanical Engineer; C. T. Henfrey, Chief Engineer; C. T. Hutson, Chief Commercial Superintendent; G. P. G. Mackay, Chief Operating Superintendent; A. H. Earley, Chief Ports Manager; W. J. Lardner, Stores Superintendent;

Nyasaland Railways Limited and Trans-Zambesia Railway Co. Ltd.

Messrs. B. M. Strouts, Deputy General Manager; J. F. M. Hodgson, Chief Engineer; E. Hudson, Chief Mechanical Engineer; L. W. Eastwick, Traffic Superintendent;

South African Railways & Harbours

Messrs. D. H. C. du Plessis, General Manager; J. A. Kruger, Assistant General Manager (Operating); Dr. L. Douglas, Chief Mechanical Engineer; Messrs. A. Goldstein, Chief Civil Engineer; W. L. King, Acting Chief Electrical Engineer; H. C. de Wet, Chief Superintendent (Parliamentary); D. J. G. C. de Villiers, Assistant Superintendent (Parliamentary); J. C. Piek, Private Secretary to the General Manager; J. P. Laurens, Head, Division Planning, Co-ordinating and Research;

Rhodesia Railways

Lt.-Colonel H. B. Everard, General Manager; Messrs. J. W. S. Pegrum, Deputy General Manager; J. H. Allen, Principal Executive Officer (Movement); J. G. P. Hamilton, Chief Mechanical Engineer; A. M. Hawkins, Chief Engineer; A. H. Croxton, Chief Superintendent of Transportation; M. W. Davies, Chief Commercial Manager; T. A. Wright, Chief Accounts & Finance Officer; C. K. Crookshank, Chief Stores Superintendent

This is the third occasion on which

the General Managers and other senior officers of these railways have met to discuss matters of common interest. The first conference was held in Johannesburg in October, 1954, and the second in Nairobi in November, 1955.

Delegates arrived at the Victoria Falls Hotel by special train on June 12 after spending a day in Bulawayo during which they visited the mechanical workshops of the Rhodesia Railways, and thereafter the new marshalling yards at Mpopoma. They were particularly interested in the C.T.C. control room which controls part of the longest stretch of railway under C.T.C. in Southern Africa.

One of the new lounge-diner cars was attached to the special train and delegates were impressed with the comfort and workmanship of the unit, the more so as they had seen one under construction in the workshops.

Colonel Everard in his opening remarks on June 12 referred to the great value of the interchange of information and ideas which had resulted from these periodical conferences.

Operating Questions

In the discussion which followed, the various railways dealt with their experiences in devising methods of increasing the capacity of single lines which predominate in Southern Africa. Amongst the signalling devices discussed were non-token working, the exchange of orders for the movement of trains by telephone with automatic recording of the messages, remote control of interlocks, and the installation of full or modified C.T.C.

Methods of overcoming the difficulties of track circuiting with steel sleepers were



Delegates at Victoria Falls: (front row, left to right) Mr. B. M. Strouts; Colonel R. J. Walker; Monsieur G. Wenes; Lt.-Colonel H. B. Everard; Mr. D. H. C. du Plessis; Engenheiro F. F. Pinto Eliseu; Sir Arthur Kirby; Monsieur E. Bruart

mentioned. It was eventually agreed that a sub-committee should be formed, under the chairmanship of the Rhodesia Railways, to consider these various signalling methods in more detail, and that the sub-committee should report at intervals to the main secretariat.

Motive Power

Mr. D. H. C. du Plessis, General Manager of S.A.R. & H., when various delegates stressed the advantages of electric or diesel traction, announced that his administration had decided to electrify from Touws River to Beaufort West, 180 miles, as the most satisfactory way of providing for the increased tonnages which had to be carried.

Rhodesia Railways were still awaiting the report of the consultants regarding future types of motive power. All the administrations represented were much interested in the results being obtained by other railways in their experiments with various types of motive power, as all in Southern Africa were faced with the same problem of providing on single lines for the tremendous development in traffic. It was agreed that a further sub-committee to deal mainly with the technical aspects of the various types of motive power should be constituted to be convened by S.A.R. & H.

Level Crossings

As to the protection of level crossings, all railways represented made clear their concern at the increased incidence of level crossing accidents and the failure of existing warning devices adequately to protect road users from the consequences of their own actions. It was realised that though the problem was really one for road authorities, the railways must themselves continue to provide the most adequate forms of protection they could devise.

Colonel Everard referred to the great interest taken by the public in this problem. Whilst it was realised that the only answer was the complete elimination of crossings, all delegates agreed that this was impracticable on the grounds of expense. The Rhodesia Railways estimated the cost of flashlight signals at £750 per installation and the provision of booms, though not the complete answer, at about £4,000 per installation, plus the recurrent costs of operation.

Amongst the measures suggested by delegates for minimising the risk of accidents at level crossings were: a cleared area on both sides of the road approaching the crossing so that motorists coming upon a train unawares could swerve out of danger; reflector-types of warning boards; insistence on crossings at right-angles; visual warning signs painted on the road; "stop" signs; and traffic lights. S.A.R. & H. indicated that their experience with "stop" signs had not been encouraging, but Sir Arthur Kirby stated that similar measures in Palestine had been effective.

Safety of Railway Staff

Other matters discussed on June 12 included "safety first" measures on the railways and on railway premises. The S.A.R. referred to their experiment with the use of Health Officers for watching operating methods. Sir Arthur Kirby said that there seemed to be a need for a new branch of medicine which could be known as "industrial medicine." The systems adopted by the various railways for the reporting of accidents, the maintenance of statistics regarding accidents and the following up routines were also discussed.

Track Problems

Other agenda items dealt with included the problem of rail stresses on curved track, axleloads, the use of track recorders in assisting maintenance and the use of mechanised equipment for track maintenance. The special problem posed by the stationing of maintenance gangs in lonely areas was also dealt with, special emphasis being laid on the effect on human relations of the provision of communities where such staff could enjoy reasonable social amenities.

Additional items discussed were: roller bearings in axleboxes, goods shed design and operation, mechanical refrigeration in railway wagons and coaches, stores procedure, the report of the Standardisation Sub-Committee, track circuits on steel sleepers, concrete sleepers, and the mechanisation of cargo handling in harbours.

B.R.S. Continental Ferry Services

British Road Services have now completed plans for developing their direct road services to and from the Continent, using the ships on the already well-established Tilbury-Antwerp run of the Transport Ferry Service of their associated company, Atlantic Steam Navigation Co. Limited. A similar joint service has already proven highly successful for traffic to and from Northern Ireland.

Enquiries will be received by any B.R.S. branch and traffic operation will be controlled from an office at Tilbury under the control of the Purfleet branch, much in the same way as the Irish Ferry branch at Preston controls the operation of the Northern Ireland service.

British Road Services have appointed as their Continental Agents, Société Belgo-Anglaise des Ferry Boats, s.a., Rue de Louvain, 21, Brussels, which will be responsible for arranging the Continental haul from and to the Port of Antwerp, and for arranging return loads from the Continent.

Normally, 10-ton semi-trailers will be used on the service, but special containers capable of taking consignments of up to six tons will also be available on request. Furniture removal vans, tankers for liquids in bulk, and low loaders for heavy haulage will be available through B.R.S. (Pickfords) Limited. Traffic requiring insulated containers will be catered for by B.R.S. (Meat Haulage) Limited in conjunction with United Carriers Limited.

Expansion of Traffic

British Road Services foresee that traffic to and from the Continent will expand, particularly in view of the possibilities which can develop if and when the United Kingdom joins the European Common Market, and for this both B.R.S. and the Transport Ferry Service are already planning.

The advantages of a service that avoids any handling of the consignment between collection and delivery points and thereby reduces the need for expensive packing will appeal to many traders.

The measure of trade potential between the United Kingdom and the countries for which B.R.S. will cater for initially can be gauged from figures taken from the *Monthly Digest of Statistics* issued by the Central Statistical Office. During 1956, the monthly average figures in £ millions for exports to and imports from

various European countries were: Belgium and Luxembourg, 5.8 and 6.3; Holland, 9.9 and 11.4; France, 7.4 and 9.4; and Western Germany, 7.7 and 9.2. Trade of this order with its potential for expansion convinces British Road Services that there is a need for a direct and regular road service to and from the Continent, supplementing other forms of cross-channel transport.

Display of Models at Civil Engineers Conversazione

Among the many models and specimens of apparatus shown at the 109th conversazione held at the Institution of Civil Engineers, Great George Street, London, S.W.1, on June 19, was an automatic recorder for use in conjunction with the soil mechanics consolidation test. This was exhibited by Mr. M. G. R. Smith, Chief Civil Engineer, British Railways, Western Region.

In the consolidation test a sample of soil is subjected to a vertical load under which a variable rate of consolidation occurs. It is convenient to present the results of the test on a graph showing the decrease in thickness of the sample with respect to either the logarithm or the square root of time elapsed. The purpose of the machine is to produce this graph automatically. The co-ordinate of the graph representing decrease in thickness is produced by the rotation of a drum in the following manner.

The movement sensing system consists of two contacts, one being fixed to the beam of the consolidation unit and the other being carried on a servo motor driven micrometer. The contacts control this servo motor via a sensitive amplifier. The movement of the micrometer is transformed into the rotary motion of the drum by a synchronous motor and repeater. Variable amplification is achieved by a gear chain. The mechanism is sensitive to movements of 10 micro-inches and amplifies between 72:1 and 720:1.

The time co-ordinate of the required graph is produced by the movement of a pen across the drum at a velocity proportional to the square root or logarithm of time elapsed. This movement is achieved by the employment of three infinitely variable gear units suitably interconnected.

New Works at Barking

Models of the reconstruction of the station and alteration of the tracks including flyovers and flyunder at Barking, in connection with electrification of the L.T.S. Section of the Eastern Region, were exhibited by Mr. A. K. Terris, Chief Civil Engineer, British Railways, Eastern Region. Reference to the scheme has been made on several occasions in this journal.

Also shown was a model indicating the layout of the new terminal area at Gatwick Airport, now under construction, adjoining the new railway station (formerly Gatwick Racecourse Station) on the Southern Region London-Brighton main line. The model was displayed by Messrs. S. Snow & Partners, consulting engineers.

Sectional models of the Royal Albert railway and proposed Tamar suspension road bridges were exhibited by Messrs. Mott, Hay & Anderson, consulting engineers. They were constructed for wind tunnel tests. Because of the proximity of the proposed road bridge to the existing railway bridge at Saltash, it was necessary to consider the possibility of oscillations arising from buffeting as well as from

aerodynamic instability, and to establish that the new bridge would have no buffeting effect on the existing one.

A silver-plated model of the Forth Bridge was exhibited by the Director & Secretary of the Science Museum, South Kensington.

Luncheon to Mr. James B. Thom

Mr. Ben Russell presided at the luncheon given on June 21, at the Dorchester Hotel, London, to Mr. James B. Thom, who is retiring from the post of European General Manager, Canadian National Railways.

After the Loyal toast, that of the guest of honour was proposed by the chairman, and seconded by Mr. E. Spackman. Mr. Thom replied. The arrangements for the luncheon, which was most successful, with an attendance of well over 100, were made by the committee whose names were given in our June 7 issue. Contributors to the presentation—which is to be a gold watch—included, besides those attending the luncheon, Messrs. R. Biddle, N. Crump, S. Hearn, and Major-General Gilbert Szlumper.

Others present included:—

Messrs. O. Aardal, H. Arkle, Colonel Ashton C. Bonaffon, Messrs. M. Bowley, V. Bridgen, Leonard Castle, David Fay, Wallace Frame, J. J. C. Fielding, C. Garstang,

Messrs. R. H. Hacker, F. D. M. Harding, C. M. Hannover, D. H. Handover, M. Hibbert, Charles Holt, E. F. Humphries, Shirley James, R. R. James, C. F. Klapper, R. Loraine,

Messrs. Gilbert Matthews, E. J. Morris, Arthur Masey, M. D. Morrissey, R. R. May, L. H. K. Neil, W. N. Roberts,

Mr. R. E. Sinfield, Sir Eric Studd, Messrs. C. Squarey, J. W. Short, S. W. Smart,

Messrs. A. G. Tofield, J. W. Townshend,

C. G. Thearle, G. Unzell, M. Vignon, E. Williams, Leslie Williams, E. Wolff, Tarleton Winchester, and A. Webb.

Staff and Labour Matters

Provincial Busmen's Wage Dispute

After a meeting on June 17 of the National Council for the Omnibus Industry, which deals with the rates of pay and conditions of service of some 100,000 workpeople in the provincial bus industry employed by private bus companies and the undertakings controlled by the B.T.C., the trade unions' side of the Council threatened strike action because negotiations on the unions' application for higher pay for busmen had broken down. The unions asked for a £1 per week rise, and the employers offer of 3s. a week, making a total of 8s., or approximately 5 per cent since November last, was rejected outright.

Last November the National Council, in response to a substantial claim by the Unions, agreed to increase basic wage rates by 5s. a week (approximately 3 per cent). A further substantial claim was made by the unions within three months of this settlement and, having regard to the fact that the March, 1957, increase given to railway employees was on a 5 per cent basis, a further 3s. was offered.

The unions' claim is for further increases of more than £1 a week (e.g., the claim for a driver is for a further 21s. 6d. a week basic), plus an alteration to Saturday afternoon pay conditions worth a further 2s. a week. The increase of 5s. last November was a voluntary settlement in respect of a then comparable claim by the Unions for similar amounts.

On May 31, 1957, the unions unilaterally (as they had the legal right to do)

abolished that part of the constitution of the National Council which provided for compulsory arbitration in the event of failure to agree upon such a claim.

The employers' representatives on the Council have recommended companies to put into force forthwith a further increase of 3s. a week and have informed the unions accordingly. They have told the unions that they will willingly join in any voluntary arbitration, through the Minister of Labour or otherwise.

Questions in Parliament

Staggered Working Hours in London

Mr. R. Sharples (Sutton & Cheam—C.) asked the Minister of Transport & Civil Aviation on June 5 for a statement with regard to the progress of his campaign to relieve pressure on travel facilities within the London area by staggering hours of work.

Mr. Harold Watkinson: Schemes for five out of the six zones into which Central London has been divided for this purpose have now been launched. Working hours for 10,000 staff have already been altered.

Mr. Sharples: Is the Minister receiving co-operation from industry and from Government Departments?

Mr. Watkinson: Yes, and I should like to say that I think Mr. Fitzgerald's crush hour Committee is doing very well, and will have a notable effect on London traffic in peak hours.

Central Line Conditions

Mr. J. Biggs-Davison (Chigwell—C.) asked the Minister of Transport & Civil Aviation on June 5 whether he would arrange to make available to Parliament and the public the reasons for the rejection by the Transport Users' Consultative Committee of the plan for improving rush-hour conditions on the Central Line of London Transport prepared by a joint committee representative of local authorities, including the Chigwell Urban District Council and the Epping & Ongar Rural District Council.

Mr. G. R. H. Nugent, Joint Parliamentary Secretary, in a written answer: I understand that a full report of the London Transport Users' Consultative Committee meeting on this question has already been sent to the local authorities concerned, and that the Chairman of the Committee would be glad to send a copy of this report to any Member who asks for it.

Demonstration Runs of Western Region Inter-City Diesels

(See our June 21 issue)



At Cardiff on June 12, after the demonstration run from Newport: (left to right) Mr. A. C. B. Pickford; Alderman J. H. Morgan, J.P., Lord Mayor of Cardiff; Messrs. J. H. F. Page, District Operating Superintendent, Cardiff; C. H. Swancutt, Stationmaster, Cardiff General; K. W. C. Grand; Sir Robert Webber, J.P., President, Cardiff Business Club; Sir Brian Robertson

WESTERN REGION DIESEL SERVICES IN BIRMINGHAM AREA.—Diesel trains were introduced by British Railways, Western Region, on June 17, for suburban services radiating from Snow Hill and Moor Street Stations, Birmingham. The new trains will serve stations between Birmingham and Wolverhampton Low Level, Wellington (Salop), Kidderminster, Bewdley, Leamington Spa, and Stratford-upon-Avon. Specially designed to meet the needs of suburban traffic, these diesel sets have been built as three-car units, capable of being formed into nine-car sets by coupling three units together. Each three-car unit consists of a motor second brake, trailer composite, and a motor second, each motor car being powered by two 150-h.p. British United Traction engines, giving a total of 600 h.p. for the three-car set, with a power/weight ratio of 6.3 to 1.

Contracts and Tenders

Colour-light signalling for Kent Coast electrification

British Railways, Southern Region, have placed a contract with Westinghouse Brake & Signal Co. Ltd., for the resignalling of the section from Herne Hill to Swanley with the addition of the Catford Loop from Cambria Junction to Shortlands and the Chatham Line from Elmstead Woods to Petts Wood.

The new scheme provides for four aspect signalling with colour light signals, junction indicators, floodlit disc shunt signals, all electric point machines, and complete track circuiting with impedance bonds throughout the area in accordance with the Region's standard practice. At Cambria Junction, Nunhead, Bellingham, Penge East and Swanley, the existing signalboxes will be retained with their mechanical frames but will be re-wired to new relay rooms for the plug-in relays.

There will be new signalboxes with relay interlocking panels at Beckenham, Shortlands, which will also control the Bromley South Area, and at Chislehurst, which will control the area between Elmstead Woods and Petts Wood and the loops between the Tonbridge and Chatham lines and on the latter to St. Mary Cray.

British Railways, Southern Region, have placed a contract with Metropolitan-Vickers-G.R.S. Limited, for the supply and installation of colour light signalling between Teynham and Ramsgate, with type NX route relay interlocking at Faversham, and electrical equipment to convert the signal cabins at Herne Bay, Margate, and Ramsgate from mechanical to electro-mechanical working.

British Railways, Southern Region, have placed a contract with the Siemens & General Electric Railway Signal Co. Ltd., for colour light signalling in connection with the electrification extension from Gillingham to the Kent coast. Three interlocking control panels will be provided in new signalboxes at Rochester, Rainham, and Sittingbourne, and the whole of the Sheerness Branch will be controlled by remote control methods from the panel at Sittingbourne. A relay interlocking control panel combined with an illuminated track diagram will also be provided at Farningham Road, to work in conjunction with the existing mechanical lever frame. Altogether 10 signalboxes will be abolished.

The contract includes plug-in relays, impedance bonds, colour-light signals, shunt signals, combined type electric point machines, multi-core signalling cables, power mains cables and associated equipment, telecommunications cables for signal post telephones, lever locks, detonator placer machines, and power equipment for level crossing gates.

Canadian National Railways have placed a contract with the Canadian Car Co. Ltd., for the construction of 49 steam generator vans. The vans are expected to be delivered by the end of the year, and will provide steamheat for passenger trains whose diesel locomotives are not equipped with steam generators. They will be equipped with two steam generating units, a diesel-generator set, water tanks with a total capacity of 3,000 gal., and fuel tanks of 500-gal. capacity.

British Transport Waterways have placed the following contracts:—

Richard Dunston Limited, Thorne, Nr. Doncaster: two bottom-tipping hopper boats, and five dredging hoppers, Trent Navigation

J. S. Watson (Gainsborough) Limited, Gainsborough: five dredging hoppers, Trent Navigation

E. C. Jones & Son (Brentford) Ltd., Brentford: one 60-h.p. diesel tug, Trent Navigation

Ruddock & Meigham Limited, Harrow, Middlesex: foundation and floor of warehouse extension No. 4 at Brentford

Ludwell & Co. Ltd., Leamington Spa: construction of warehouse extension No. 4 at Brentford

Thomas Smith & Sons (Rodley) Ltd., Rodley, Nr. Leeds: three crawler-mounted grubbing cranes, Watford district

I. Pimblott & Sons Ltd., Northwich: three powered all-steel traffic craft, and three butty boats, for trading between the Mersey and the Midlands.

British Railways, London Midland Region, have placed the following contracts:

Sprosson & Babbs Limited, Holloway, N.19: accommodation for Camden Motive Power Branch of Staff Association, Primrose Hill

A. E. Knights, Chapel-en-le-Frith: labour only repainting and repairs, re-lining, north end, Clay Cross Tunnel
Leonard Fairclough Limited, Adlington, Lancs: staff accommodation carriage and wagon building, Glazebrook Junction, Irlam, and for pavings in area of capstan and crane gantry, improved port facilities, import and export sheds, Holyhead Harbour

H. J. Cash & Co. Ltd., Westminster, S.W.1: heating and ventilation, outdoor machinery workshops, low level goods, Somers Town

Demolition & Construction Co. Ltd., London, S.W.1: new drainage provision of low level awnings and work to high level roof, Citadel Station, Carlisle

Wm. Townson & Sons Ltd., Bolton: improved storage accommodation for stores stocks, Horwich Works

T. & E. Warrington (Hyde) Limited, Hyde, nr. Manchester: staff amenities and improved stores accommodation, wagon repair depot, Ordsall Lane, Manchester

Concrete Proofing Co. Ltd., Glasgow, C.3: repairs to concrete of coaling plant by Gunite, motive power depot, Accrington

Demolition & Construction Co. Ltd., London, S.W.1: extensions and reconstruction of platforms at Wilmslow, Styal, Heald Green, Gatley, East Didsbury, Burnage, and Mauldeth Road Stations, main line electrification

Norwest Construction Co. Ltd., Liverpool, 21: new forwarded sundries shed at Spekeld Road Goods Depot, Liverpool.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from Portuguese East Africa for locomotive spares as follows:—

feeding units, tyre fastening rings, cylinder blocks, journal boxes, terminal check boxes, tyres, cross-pieces, knuckles for couplings, discs for traction units, vacuum brake injectors, superheating

elements, shock absorbers, piston rods, springs, parallels, wire netting for smoke-boxes, axles, wheel and axle assemblies, roller bearings, distribution sectors, water circulating and steam collecting pipes, smoketubes, coupling head assemblies and pipe bends.

The issuing authority is the Ports, Railways & Transport Department. The tender No. is 110/57. The closing date is August 27, 1957. Drawings are obtainable from the Railway Warehouse at Lourenço Marques through the local agents of United Kingdom firms interested. United Kingdom firms are reminded that they cannot submit tenders direct but only through firms established in Mozambique whose names are registered with the Stores Department of the Treasury (Almoxarifado de Fazenda), Lourenço Marques. The Branch (Lacon House, Theobalds Road, W.C.1.), will, on request, supply the names of local concerns who have expressed their willingness to act on behalf of United Kingdom firms. The reference ESB/15021/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from India for railway wagon axlebox bearings, as follows:—

12,660 axlebox bearings, 9 in. × 4½ in. (M.G.) to I.R.S. drg. No. W.802, alt. 13 and to I.R.S. specn. Nos. R-7/49, N-6-49, class III and N-10-54, class III
580 axlebox bearings, white metalled, 8 in. × 4½ in. jnls. to W.Rly. drg. No. 16/FRD (D.G.S. & D. No. 7102)C and I.R.S. specn. Nos. R7/49, N-6-49, class III, and N-10-54, class III.

The issuing authority is the Director General of Supplies and Disposals. The tender No. is P/SRI/17807-G/I. Bids should be sent to the Director General of Supplies and Disposals, Shahjahan Road, New Delhi. The closing date is July 11, 1957. A set of tender documents is available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1.). The attention of United Kingdom firms is drawn to a booklet issued by the Government of India entitled "Conditions of Contract Governing Department of Supply Contracts," a copy of which is available for inspection at the Branch. The reference ESB/14978/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from Iran for 15,000 tons of railway rails.

The issuing authority and address to which bids should be sent is the Iranian State Railways, Tehran. The closing date is July 6, 1957. A copy of the technical specifications is available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1.). Bids must be accompanied by a separate envelope containing a bank guarantee of fulfilment, valid for two months, for \$75,000. The reference ESB/14407/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from Uruguay for steel

tyres and steel bars for railway coaches and engines as follows:—

(a) 300 steel tyres for passenger coaches and wagons 806.4 mm. internal dia.

(b) 150 steel tyres for passenger coaches and wagons 805.5 mm. internal dia.

(c) 200 steel tyres for diesel-electric engines

(d) 200 steel bars for safety staples for item (c), 2,900 mm. long.

The issuing authority is the Administración de Ferrocarriles del Estado. The tender No. is 309/57. A guarantee of Ur\$9,000 is required for maintenance of offers. The closing date is July 5, 1957. A copy of the specification, in Spanish, is available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1.). The reference ESB/14756/57 should be quoted in any correspondence with the Branch.

Notes and News

Social Centre for Camden Enginemen.—Work has started on a new club for members of the Camden Motive Power branch of the British Railways, London Midland Region, Staff Association. A small hall adjacent to Primrose Hill Station is being converted into a social centre with a concert hall and stage, a bar and facilities for table tennis and other indoor activities. The interior decoration will be on contemporary lines. The branch has a membership of about 200 engine drivers, firemen, and cleaners from the Camden engine shed. The London Midland Region Staff Association has 28,429 members with 92 branches throughout the Region.

Swiss Aid for Modernisation of Arlberg Line.—Representatives of the Swiss and Austrian Federal Railways are reported to have reached an agreement, subject to Government approval, for a loan of about £1,500,000 to be granted by the Swiss Federal Railways for modernisation of the Arlberg line of the Austrian Federal Rail-

ways. Much of the traffic carried by the Arlberg line is necessarily moved in transit through Switzerland, and is therefore of considerable value to the Swiss Federal Railways.

Roller Bearing Factory in Australia.—The Timken Roller Bearing Company, of Canton, Ohio, has completed negotiations with the Government of Victoria in connection with the establishment of a factory, to cost £A1,250,000, at Ballarat. The factory is expected to be in operation by the end of this year and will give employment for about 500.

Type "A" Diesel-Electric Locomotive for British Railways.—Components supplied by Lightalloys Limited for the Type "A" 1,000-h.p. diesel-electric locomotive built by the Vulcan Foundry Limited for British Railways, and described in our June 7 issue, include eleven side service doors, two cabside doors, seven louvre doors, and six hatch covers; all these items are Alpax light alloy castings.

Institution of Civil Engineers Conversatione.—Sir Arthur Whitaker, the President, received the guests at the conversatione held by the Institution of Civil Engineers at Great George Street, London, S.W.1, on June 19. The guests included: The Federal German Minister, the Agent for Northern Ireland, the Mayor of Westminster, Mr. Henry Brooke, Mr. Boyd-Carpenter, Sir Norman Brook, Sir Leslie Ford, Sir Harold Hartley, Sir William Halcrow, and Sir John Thornycroft.

British Transport Staff at Dunkirk Memorial Unveiling.—Sea-going staff of the British Transport Commission shipping services are to be included in the Merchant Navy representation at the unveiling on June 29 of the memorial at Dunkirk to commemorate men of the expeditionary force who died in the campaign in 1939-40 and who have no known grave. The unveiling ceremony will be performed by Queen Elizabeth the Queen Mother. Captain G. D. Walker, British Railways,

Southern Region, Dover, and six ratings, all of whom took part in the Dunkirk evacuation in 1940, will form part of the Merchant Navy contingent, and Captain Walker, being the senior Merchant Navy officer at the ceremony, will lay a wreath on behalf of that service. Captain C. R. Baxter, British Railways, Eastern Region, will be a guest at the ceremony.

Rolling Stock for Nigeria.—Double-glazed fixed airtight windows for the Governor's saloon described in our issue of June 21 were supplied by Henry Hope & Sons Limited, of Smethwick, Birmingham.

J. Stone & Co. (Holdings) Ltd.—The ordinary dividend of J. Stone & Co. (Holdings), Ltd., engineers, is held at 16 per cent, with an unchanged final payment of 12 per cent. In addition a special distribution of 2 per cent (nil) out of realised capital profits is to be paid. Group net profits for 1956 declined to £563,434 from £647,438 for 1955, after tax of £508,651 (£626,633).

Damage to Railways in Alps.—Normal traffic was resumed on June 19 on the Visp-Zermatt railway, which was blocked by a landslide the previous day. There is so much damage in the Arc valley in Savoy that repairs to the Mont Cenis railway cannot be completed for several weeks. Meanwhile, the Paris-Turin express is running via Switzerland and the Simplon tunnel.

Withdrawal of Watlington-Princes Risborough Passenger Service.—British Railways, Western Region, are withdrawing the passenger train service between Watlington and Princes Risborough from July 1. An alternative road service covering the area will be operated by the City of Oxford Motor Services Limited. Parcels will continue to be dealt with at Watlington, Aston Rowant, and Chinnor stations, the following halts being closed for all purposes: Bledlow Bridge, Wainhill, Kingston Crossings, and Lewknor Bridge. Opened in 1872, this nine-mile long branch is at

Inaugural Run of the "Caledonian"

(See our June 21 issue)



Leaving Euston, to the pipes of the band of the Royal Caledonian School, Bushey



The down train, hauled by L.M. Region "Coronation" class locomotive "City of Glasgow"

present served by four trains each week-day from Princes Risborough to Watlington, and five trains from Watlington to Princes Risborough, with an additional train in each direction on Saturdays.

Canadian Pacific Railway Dividend.—The Canadian Pacific Railway Company has announced an unchanged interim ordinary dividend of 3 per cent. For 1956 a final dividend of 3 per cent, and an extra dividend of 1 per cent were paid.

North Eastern Region Publicity.—The accompanying illustration shows two new double royal posters produced by the department of the Public Relations & Publicity Officer, North Eastern Region. They are being displayed in British Railways stations throughout the country and in agencies and offices in North America. That depicting Castle Howard was reproduced from a colour transparency taken by Mr. K. Pettinger of York; it is in 10 colours and was printed by the British Colour Printing Company, New Cross, London, by the photo-lithography process. Another poster (not reproduced) in the "England's Stately Homes" series shows Newby Hall, Yorkshire. It was painted by David Shepherd and printed by Jordison & Co. Ltd., of Middlesbrough, in 11 colours, also by the chrome-lithography process.

Modernisation at Willesden Junction High Level.—After extensive remodelling and modernisation at Willesden Junction Low Level main-line station, a similar scheme has been undertaken at Willesden Junction High Level; this is near completion. New platform buildings have been built and a new large waiting room opened to the public. The High Level station, on the Broad Street—Richmond electric line, is built over the main line station; and the reconstruction was therefore complicated by special safety precautions and other restrictions. The scheme involved the complete remodelling of the station and its buildings and the lengthening of the island platform at the Kensal Rise end with a corresponding shortening at the Acton end. This avoided the need for reconstruction of the portion over the main line. The island platform is provided with a general waiting room, lavatories,



FOUNTAINS ABBEY

YORKSHIRE

SEE BRITAIN BY TRAIN



England's Stately Homes

TRAVEL BY TRAIN

Posters produced by the Public Relations & Publicity Officer, North Eastern Region

foreman's and porters' rooms and a bookstall. The booking hall and offices have been removed to the main line and Harrow Road booking offices. This necessitated a slight alteration in the subway approach from the new line station.

Offer for Dorada Railway Stock.—Seton Trust Limited has now formally offered, on behalf of clients, to acquire the issued stock of the Dorada Railway Co. Ltd. at a price of £59 10s. per £100 stock. The offer is conditional upon acceptance by holders of not less than 90 per cent, or less if the clients of the purchaser so decide, of the £604,347 stock in issue. The directors of the Dorada Railway Co. Ltd. recommend acceptance of the offer. They point out that if the company were put into liquidation it would be many months before the final distribution could be made. The price now offered exceeds that which stockholders might expect to receive in a liquidation and if the offer

becomes effective stockholders will receive immediate cash against the whole of their holdings instead of waiting for payments during the liquidation process.

Higher B.E.T. Dividend.—The British Electric Traction Co. Ltd. is raising its dividend on the deferred ordinary stock for the year ended March 31 last to 25 per cent from 22½ per cent for 1955-56. The final payment is 17½ per cent against 15 per cent. Group profits rose to £3,923,135 from £3,445,040, and, after allowing £1,782,872 (£1,534,667) for tax, net profits advanced to £2,140,263 from £1,910,373.

National Savings in Nationalised Industries.—Figures issued by the National Savings Committee show that at the end of March last 923,656 workers in nationalised industries, the Civil Service, and local government, were saving regularly through 13,506 savings groups. Local authorities groups total 3,536 with a membership of 124,856. Group membership and total number of groups for the various nationalised industries include: National Coal Board 240,707 (1,073), Railways, including hotels and restaurants 59,503 (1,934); London Transport 33,589 (32); Road Haulage 5,763 (192); Central Electricity Authority 43,149 (632); Gas Industry Area Boards 25,566 (497); and Airways 2,124 (14).

Railway Students' Association Annual Report.—The annual report of the Railway Students' Association shows that in the year 1956-57 membership increased by 49 to 1,100; including 885 corporate and 215 associate members. The seven meetings during the winter session included a joint debate with the British Railways (Western Region) London Lecture and Debating Society. The six papers included the Presidential address by Mr. J. W. Watkins, Member, British Transport Commission, entitled "Industrial and Human Relations." The annual convention was held in Derby on July 21-25, when members were accommodated at the British Railways Staff Training College. Visits were paid during the year to the London Midland Region Willesden carriage clean-



Part of Willesden Junction High Level, London Midland Region, after alterations

ing and servicing depot; the Cromford & High Peak railway; the Redbridge sleeper depot of the Southern Region; the London Transport bus overhaul works at Aldenham; and to the South African terminal and King George V graving dock at Southampton Docks.

C. C. Wakefield & Co. Ltd.—In his circulated statement, Mr. L. W. Farrow, Chairman of C. C. Wakefield & Co. Ltd., states that it is difficult to attempt any forecast of trading results for the current year as these will be affected by the recent petrol rationing in the United Kingdom and in other European countries. They will also depend upon the extent to which profit margins can be maintained in the face of any possible further increase in costs. Subject to these reservations the directors consider that there is a good reason to anticipate that the results for 1957 will not be unsatisfactory. The volume of group sales throughout the world has been maintained notwithstanding the effects of Suez.

Vickers Limited Chairman's Speech.—At the annual meeting of Vickers Limited in London on June 3, Viscount Knollys, the Chairman, said that the sales of the group in 1956 amounted to £163,000,000, an increase of £31,000,000 compared with the previous year. Trading profits were higher than in 1955, even after heavier charges for depreciation and for development. Net profit after taxation was very slightly lower. For the group 1956 was a year of expansion, realised and projected. The board had had two objectives in view; to diversify the group's activities both in type of product and geographically, and at the same time to develop and improve existing well-established production. The group must at all times be prepared to be in the forefront of the newest developments. In these days of change and crises forecasting could never be easy, but the group's engineering interests in all parts of the world were well equipped to continue to take advantage of the demand for the company's kind of products, although in some directions, and particularly in defence products, things were bound to be rather less active.

Forthcoming Meetings

Open currently and until further notice.—British Transport Commission: Historical Exhibition "Transport Treasures" in Shareholders' Meeting Room, Euston Station, from 10 a.m. to 6 p.m. on weekdays, and 2 to 6 p.m. on Sundays. Admission 6d.

June 28 (Fri.) to June 30 (Sun.).—British Transport Commission, Modern Railway Travel Exhibition, at Battersea Wharf Goods Depot. Open Friday, June 28, 4 p.m. to 9 p.m., Saturday, June 29, 10 a.m. to 9 p.m., and Sunday, June 30, 2 p.m. to 9 p.m. Admission free.

July 2 (Tue.).—Railway Correspondence & Travel Society, Sheffield Branch, at the Livesey Clegg House, Union Street, Sheffield, at 7.30 p.m. Paper on "Swiss Railways," by Mr. D. Sutcliffe.

July 2 (Tues.).—Permanent Way Institution, Manchester & Liverpool Section. Additional meeting in the Ambulance Room, Nantwich Road, Crewe, at 7.15 p.m. Short talks and general discussion on permanent way main-

tenance. Mr. W. F. Beatty will preside.

July 6 (Sat.).—Railway Correspondence & Travel Society, East Midlands Branch. Denton Mines rail tour.

July 6 (Sat.).—Permanent Way Institution, London Section, Joint visit to Chester Junction Welding Depot, Eastern Region, with East Anglia Section members; visit for ladies to colleges in Cambridge.

July 6 (Sat.).—Railway Correspondence & Travel Society. Réseau Breton rail tour, leaving Waterloo at 6.35 p.m. on Friday, July 5.

July 13 (Sat.) to July 20 (Sat.).—University of Birmingham Department of Extramural Studies, residential course on canal and railway history, at Preston Montford, near Shrewsbury.

July 18 (Thu.).—Model Railway Club, at Caxton Hall, Westminster, S.W.1, at 7.45 p.m. Talk on "Modelling the North Eastern," by Mr. T. Horn.

Railway Stock Market

There have been conflicting factors in stock markets, but an easier trend in steel and insurance shares was followed by a rally in response to the view that a more liberal dividend policy may be decided on if the Labour Party continues to emphasise a policy of State control by the next Labour Government. The higher interim dividend and bigger payment officially foreshadowed by United Steel on the larger capital arising from the free scrip issue has, rightly or wrongly, been regarded in the City as an indication of a more generous dividend policy by steel companies generally.

Among Dominion and colonial railway securities, Nyasaland Railways shares remained prominent on higher dividend possibilities and at 12s. compared with 11s. 6d. a week ago. Canadian Pacific at 56½ were virtually the same as a week ago, and White Pass remained at 52s.

In foreign rails, United of Havana income stock was again 8½ and following the latest developments, Dorada ordinary stock was quoted at 58½. Antofagasta ordinary stock rallied from 35½ to 36½ and the preference has been firmer at 45 xd, while the 5 per cent (Bolivia) debentures remained at 94½. Guayaquil & Quito assented bonds marked 81 and business up to 12s. 9d. was shown in Taita Railway shares and up to 6½ in Brazil Railway bonds.

Mexican Central bearer debentures remained at 65. International of Central America shares held their recent improvement to 547½ and the preferred stock remained at 185s.

A feature among shares of locomotive builders and engineers was renewed activity in North British Locomotive, which rebounded to 20s. 6d. compared with 18s. 6d. a week ago; but there has been no confirmation of the vague merger and take-over talk which has been responsible for the outburst of activity in the shares. Beyer, Peacock kept their improvement to 11s. 1½d. and Birmingham Wagon held their level of 17s. 10½d. while Hurst Nelson at 36s. were within 6d. of the price ruling a week ago. Wagon Repairs 5s. shares showed firmness at 14s. and Gloucester Wagon 10s. shares were 16s. G. D. Peters kept at 27s. 6d. Westinghouse were firmer at 39s. 9d.

Rolls-Royce at 118s. 6d. remained under the influence of Lord Kindersley's

annual statement and the success of the big rights issue. Dowty Group 10s. shares have strengthened to 39s. 3d. and F. Perkins 10s. shares were 15s. 4½d. while T. W. Ward, which have been well maintained at 81s. 6d., continued to reflect higher dividend hopes in the market.

Renold Chain were firm at 39s. and British Oxygen at 37s. 6d. attracted attention because of the good yield. Associated Electrical firmed up to 64s. after a reaction, but this compared with 64s. 9d. a week ago.

General Electric eased from 56s. 9d. to 55s. 9d. and English Electric from 59s. 9d. to 59s. 6d. Ruston & Hornsby at 33s. again showed firmness on higher dividend talk, and British Timken were 63s. 3d. while Ransome & Marles 5s. shares were 13s. 4½d. Elsewhere Babcock & Wilcox have eased to 70s. 9d. and Clarke Chapman to 173s. 9d. while Vickers at 43s. 6d. and Cammell Laird 5s. shares at 10s. 10½d. lost a few pence. Birmid Industries were 77s. 6d. and B.I. Cables have moved up from 52s. 6d. a week ago to 53s. and Lancashire Dynamo kept at 44s. 9d. A.C.V. shares were 57s. 6d. and Pressed Steel 5s. shares 17s. 9d.

Among steels, United Steel at 34s. 1½d. responded to the raising of the interim dividend. Dorman Long at 27s. reflected hopes that the forthcoming interim dividend may be increased.

OFFICIAL NOTICES

DRAUGHTSMAN urgently required for expanding mechanical and structural engineering company. Excellent prospects and congenial working conditions; holiday commitments honoured. Salary commensurate with ability. Apply William Jones Ltd., Westmoor Street, Charlton, S.E.7.

LONDON TRANSPORT require **SENIOR DRAUGHTSMAN** at Acton Works, experienced in railway rolling stock design. Duties include control of junior drawing office staff. Salary range £915-£950; free travel; medical examination; contributory superannuation scheme after probation. Applications within 7 days to Recruitment and Training Office (F/EV 636), London Transport, 55, Broadway, S.W.1.

CLYDE ENGINEERING CO. PTY. LTD., of Sydney, N.S.W., Australia, offers the extremely attractive position of

CHIEF ENGINEER

with prospects of considerable advancement.

The applicant should have a railroad background, with experience of construction and operation of diesel-electric and diesel-hydraulic locomotives in the widest field, and possess qualifications in engineering, supported by a university degree or its equivalent. Some commercial qualifications are also desired.

Continental qualifications are acceptable providing the applicant has a good knowledge of English, both written and spoken.

In considering applications, the management will take note of any evidence of organising ability and strong personality.

Good health is essential and applicants should not be above the age of 50.

Candidates are invited to state salary required as a basis for agreement. In any case this will be fully commensurate with qualifications.

Applications to: The General Manager, The Clyde Engineering Co. Pty. Ltd., 5, Broad Street Place, Blomfield Street, London, E.C.2.

RELAYABLE RAILWAY MATERIAL for disposal subject to remaining unsold:—

250 tons 95 lb. B.H. RAIL
150 " 85 lb. B.H. RAIL
800 " 60 lb. F.B. RAIL
140 " 50 lb. F.B. RAIL
50 " 35 lb. F.B. RAIL

Turnouts, crossings and fittings, etc., to suit the above material.

2,500 Relayable S.1 Type CHAIRED SLEEPERS

1,000 Relayable PLAIN SLEEPERS. CROSSING

TIMBERS

2,500 ROADWAY SLEEPERS.

Apply Eagle Construction Co. Ltd., East Common Lane, Scunthorpe. 'Phone 4513/7.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press, Limited 33 Tothill Street, London, S.W.1.

end

g
e
s
a
I

g
e
s
a
I
d
ol
9;
r-
ns
er
l.
of
y

d,
of
he
g.
at.
ng
th
ill
nd
ot
a
ly
de
ce,
-
is-

he
RS
IG
on
-
rs
ge
to
ed

MS